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ABSTRACT

The study identified variables contributing to success in college for low prior educational attainment students from differing cultural backgrounds; described the nature and operation of COPE (College Opportunity Program for Enrichment); described the background characteristics of the COPE students; compared the COPE students' attitudes toward education and careers with those of other students with similar background characteristics; and examined the predictors of college success for three groups of students--COPE, education, and vocational education students. The sample included 256 COPE, 169 education, and 143 vocational education students. Current college grade point average was used to measure college performance. Two self-report instruments were administered to the students: Holland's "Self-directed Search" (SDS) measured their career interests and "Career Education Description Questionnaire" (CEDQ), developed specifically for this study, measured their attitudes toward education, background characteristics, and career interests. Findings included: current attitudes toward education and careers were an important contributor to college success; and COPE students were creative and inventive students. Appendices include a review of literature dealing with vocational interests, success in college, and Spanish-speaking cultural values; and discussions of CEDQ's development, the SDS Hexagonal Model as used with COPE students, and the students' reactions to the SDS Booklet. (NQ)

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PREDICTORS OF SUCCESS IN COLLEGE FOR LOW PRIOR EDUCATIONAL ATTAINMENT MULTICULTURAL STUDENTS

Don B. Croft

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I INTRODUCTION

The open-door policy for admission to universities has been in operation for several years. Many students who never considered entering college are now on campuses throughout the nation. The students have low prior educational attainment in public schools and obtained ACT scores which were below the average for entering freshmen. Some of the students succeed in college after a short period of adjustment, but many others simply repeat their prior educational performance. Few studies identifying the variables associated with "success" or "failure" in college for low prior educational attainment students have been reported.

A special program, the College Opportunity Program for Enrichment (COPE) was established at New Mexico State University as an instrumentality for assisting students with low prior educational attainment to make the transition to college. Accordingly, a study of students in the COPE program was conducted to identify ways for improving the services offered to the students.

A. Purpose

The purpose of the study was to identify variables contributing to success in college by low income low prior educational attainment students from varying cultural backgrounds. The study included the following objectives:

1. Describe the nature and operation of the COPE program for assisting low prior educational attainment students in the transition to college.

2. Construct a culturally fair instrument for measuring the attitudes of low prior educational attainment students toward education and careers.

3. Determine the suitability of Holland's Self-directed Search vocational interest inventory for a sample of low educational attainment multicultural students.

4. Compare the background characteristics and current attitudes toward education and careers of COPE students with students in Vocational Education and students in Education.

5. Identify the variables contributing to the success of the students in their college program.

6. Make recommendations for improving the counseling and guidance services offered to the COPE students.

A review of literature associating with vocational interests, success in college, and Spanish-speaking cultural values is presented in Appendix A.

B. Preview

The study of predictors of college success for low prior educational attainment multicultural students was comprised of several separate components. The students participated in a special counseling and tutorial program on campus (COPE). The program was described to provide the salient characteristics of what was being done to assist the students to make the transition to college. In addition, changes in the program were reported, as a means to report how the guidance and counseling services were improved during the past three years.

The biographical characteristics of the special program students were compared with those of students enrolled in the Vocational Education College on campus, and students enrolled in Education. All groups had very similar characteristics, with one exception that the Education students had parents with significantly more education than the other two groups.

The attitudes toward education and careers of the special program students were compared with the Voc-Ed and Education students. The COPE students were found to be creative and inventive students, employing a rational philosophy of life. They viewed education, by and large, as an instrumentality for obtaining a good job.

Then, the biographical characteristics, attitudes toward education and careers were used to predict College GPA for the three separate groups. Current attitudes toward education were found to be nearly as important as prior educational attainment and more important than background characteristics as predictors of College GPA. Each of the three groups, however, did have unique patterns for predicting "college success."

In summary, a special program for low prior educational attainment students was established which successfully retained students in college. Essential elements of the program appeared to be the counseling provided in addition to the tutorial services which are given each student during their enrollment in the wide variety of introductory courses offered to them.

II COLLEGE OPPORTUNITY PROGRAM FOR ENRICHMENT (COPE)

Many members of low income families do not attend educational institutions after high school. Moreover, the high school graduates often did not attain well in public schools, had few friends who attended college, and were unsure how education could help them find a career. Moreover, those that do enter college frequently drop-out before completing a degree. Accordingly, a special program to help students overcome these problems was established at New Mexico State University.

A. Program Description

The College Opportunity Program for Enrichment (COPE) was initiated in July 1973, and has been in operation from that time until now. New Mexico State general funds have been the principal source of support for the program. A description of the operations of the program for the past three years is provided in the following section.

The purpose of the COPE Program was to provide recruitment, retention, and placement services for low prior educational attainment students from low income families. The COPE Program provided supplemental services designed to enhance the probability of the students obtaining a post-secondary school education and find a job compatible with their skills and interests. Specifically, the COPE Program has the following objectives:

1. Increase the number of students with low prior educational attainment from low income families who enroll in post-secondary educational programs.

2. Assess the needs of the students to assist them in deciding if their career objectives include a college education, a vocational technical education or a combination of the two.

3. Establish tutorial, counseling, and specialized classes to assist the retention of students in post-secondary educational programs.

4. To provide job placement services to the students after finishing their education.

Thus, the three major components of the program include recruitment, retention, and placement. The next section of the report discusses each of the program components.

Recruitment. The recruitment of students in the target group builds upon procedures established by the University Office of Admissions. Additional admissions counselors were hired on a part-time basis to recruit the target groups living in different regions of the state. The supplemental admissions counselors were obtained from the specific regions of the state where the recruitment of students was conducted. Moreover, the counselors included members of the ethnic groups residing in the different geographic regions, and in many cases were personally acquainted with members of the target group living in that region.

The COPE Program was established in July, 1973 with the initiation of a four week recruiting program in 12 school districts. The school districts were in regions of the state served by the five branch campuses of the University: Farmington, Grants, Carlsbad, Alamogordo, and the Dona Ana County branch. Beginning in 1974, the program was expanded to include 20 counselors recruiting students in almost every region of the state. The recruiters provided information about the COPE Program, the financial assistance available from the University to eligible students, and procedures for application to the University. Assistance was provided to students who needed help to complete the admission forms.

Students also were recruited for the COPE Program from those already admitted to the University. All students who had been admitted to

the University with an ACT composite score of 15 or less were mailed an invitation to attend an orientation session for new students. At the session, the students were informed of the COPE Program, and then received supplemental information from the COPE coordinator following the general session.

In addition to entering freshmen identified by the Admissions Office, students were referred to the program when counseled during "dropping and adding" classes during the first two weeks of the semester. Students also were referred to the program by the Ethnic Studies Coordinators, Counseling Center, and faculty members in each college on campus. Finally, students with low first semester GPA were referred to the COPE Program by their college advisors. Thus, several different sources provided referrals to the COPE Program.

Retention. COPE includes two major components for providing services to help retain students in college: (1) special classes to develop specific skills to assist students in the transition to existing college classes and (2) tutorial and counseling services for the students. All students in the COPE Program enrolled in a 10-credit hour sequence of special classes conducted by the COPE staff and one of five 4-credit hour General Education courses. A one-hour Physical Education class was optional. The course descriptions for the COPE students are presented in Table 1.

Table 1

Titles and Descriptions for
Special Courses for COPE Students

Education 113 (2 hrs). Effective Reading and Study.

The course was designed to develop student skills in reading standard English, and stressed developmental reading and the application of study skills essential to effective study in college.

Linguistics 110 (4 hrs). Freshman Writing I.

The course emphasizes practical and enjoyable aspects of English writing, speaking, and reading for enrichment.

University 101 (2 hrs). Individual Study.

The course is designed to teach study skills, for example, listening, note-taking, test-taking, study practices, and emphasizes individual study methods. The student is encouraged to achieve in academic courses.

University 102 (2 hrs). Career Planning and Development.

The course permits students to become acquainted with career opportunities in specific colleges. The student also explores career interests through the use of vocational interest inventories, occupational descriptions, and personal counseling.

General Education Courses (3-4 hrs). Government 150, Math 110, Music 101, Physics 110, Psychology 201.

All the courses are introductions to the field and present the fundamental concepts in the discipline. Enrollment is open to all university students.

Physical Education (1 hr).

Students may select any of the introductory physical education classes offered by the university.

A number of basic procedures were followed to assist the students to avail themselves of existing university services, monitor the academic program of students, and ensure that the program followed university procedures.

The retention counselors for the COPE program distributed a prepared package of class cards to each COPE student in order to facilitate registration and advisement. The retention counselors also sent a list of the names of COPE students to the Ethnic Studies Coordinators, the Special Student Services Program Director, the Director of Student Services, the Director of the Counseling Center, the Faculty member teaching each General Education class, and the Dean of the College representing the COPE students' choice of College Major. Thus, contacts and coordination with other departments

and agencies on campus was an integral part of the program.

Prior to the second semester, a pre-advisement session was conducted by the retention counselors with each of the COPE students. The counselors had obtained information from other departments and agencies on campus about the performance of the student. The pre-advisement and counseling session was designed to discuss with the students each of the following alternatives, and following the advisement, the student selected one of the alternatives to follow the next semester:

1. transfer into the regular university program
2. transfer to the vocational-technical school
3. remain in the COPE Program
4. consult with the Placement Office for suitable employment

Students had the option to remain in the COPE Program for three semesters. During that time, the retention counselors discussed the alternatives with each COPE student. Thus the progress of each student was monitored by different service agencies on campus as well as the retention counselor. Each student was provided with special classes to prepare them for other college courses so they could transfer to a regular enrollment course of study. In addition, personal as well as vocational counseling was provided in an effort to allow the student to choose additional courses in the University, classes in the Vocational Technical School, or seek placement services to find suitable employment.

Placement. The placement counselor in the University Placement Center assisted COPE students seeking employment to find a job suited to the interests and abilities of the student. In addition, the placement counselor was a resource person for the University 102 class, Career Planning and Development, included in the special classes for COPE students. The placement counselor also had contacts with business agencies who were seeking

employees, and provided the information to COPE students seeking employment. The placement counselor scheduled interviews with employers, forwarded school records as well as letters of recommendation and other information requested by employers. The placement counselor provided the following services based upon the individual needs of the COPE students:

1. Part-time and summer employment. Efforts were made to place students in part-time or summer work which was related to the students area of study. Students had the option to select jobs based upon their interests, experience or financial need.

2. Cooperative Education. COPE students had the opportunity to join the Cooperative Education program after completing 28 semester credit hours. The Co-op program included financial as well as job training benefits to the students.

3. Vocational-Technical School Graduates. COPE students who enrolled in the Dona Ana County Occupational Branch of the University were also provided services to assist them in obtaining employment.

4. Dropouts from the Program. Students who dropped from COPE before completion of either the College or Vocational Program also obtained placement services. Emphasis was placed upon securing jobs which would lead to a productive career.

5. Associate of Arts and Bachelors Degree Students. COPE students who obtained A.A. or B. S. degrees obtained placement services through the regular services offered to all graduating students.

In summary, the placement services were designed to meet the individual needs of the students in the COPE Program, as well as the students who continued in the vocational school and the students who dropped the program or secured an advanced degree. Thus, the placement counselor assisted in matching jobs with the interests and abilities of the students whatever

course of action was chosen.

B. COPE Operations, 1973-1976

The COPE Program has been in operation for more than three years. During that period, the goals and objectives have remained constant. However, it is important to describe selected aspects of the program, and to denote some of the basic changes in the program which have evolved. The changes, for the most part, emerged as a result of increased student enrollment, as well as new interventions designed to meet the academic needs of the COPE students.

General attributes of the COPE students. One striking attribute of COPE students, in general, was the fact that many came from families in which each one was the first child ever to attend college. Moreover, few of the students had decided early in their educational experience to attend college, but instead had made the decision late in their high school careers. It appears that the decision to attend college was based, to a large extent, upon the information provided by the admission counselors about the University as well as the special services offered by the COPE Program.

It was apparent that the students were motivated to attend college, but at the same time were undecided about specific majors or careers. Also, they were not familiar with admission procedures, had insufficient financial support, did not have any friends who were attending college, and in many cases expressed "unrealistic" job expectations in terms of prior educational performance. Many of the students, regardless of language background, had difficulty in oral and written communication, and had not developed effective study habits. Specifically, note-taking, self-discipline to complete homework, and the vocabulary necessary to understand instructors were their major study weaknesses.

Special Classes. Two special classes designed and conducted, for the most part, by COPE staff members were offered to the students the first semester on campus: Education 113, Effective Reading and Study; or University 102, Career Planning and Development. The classes were designed to develop basic study skills, and to explore career choices. For practical purposes both classes included instruction on study practices, but additional emphasis on this topic was provided in the Education 113 class. University 102 and Education 113 were the only special classes offered in the program; the other classes were normal enrollment classes. However, tutorial services were provided by COPE for students enrolled in the General Education classes.

In the Effective Reading and Study class, the instructor clearly delineated the goals of the course, and outlined what was expected of each student. Instruction was provided in listening, writing, note-taking and other study skills, including the use of tape recorders. Moreover, the students prepared a research paper, on a topic of their own choosing. The research papers were submitted early enough in the semester for the instructor to provide a written critique for the students. Then the students responded to the instructors critic, and resubmitted the paper. The process of resubmission continued until the paper met the standards specified by the instructor. In this way, feedback was given to the students which allowed them to correct their mistakes, and the final paper was a product of the skills which had been developed throughout the semester. The instructor also identified students who needed additional coursework in communication skills.

The career planning and development classes included instruction and discussion on the topics of self-awareness, realistic career goals, university procedures, and career skills and interests. Holland's Self-Directed Search was used to identify career interests and served as a basis for individual

discussion with the COPE students. The counseling for class selection and career exploration was conducted in a non-directive context with responsibility for decision-making resting upon the student. One outcome of this approach was that students enrolled in normal enrollment classes as a means to explore their own interests.

The two special classes allowed students to develop study skills which helped them perform better in college classes, and to explore their own career interests. The individualized approach used in the class assisted in the development of the student's skills and established rapport between the students and COPE staff members. The students made subsequent visits to the COPE office to secure individual assistance. In addition, the classes were an instrumentality for the students to develop friendships with other COPE students. Thus, when enrolled in other classes on campus, the student often found other COPE students in the classes, and could continue the friendships which already had been established.

As the students and the COPE staff interacted more frequently, additional individualized services were provided. For example, students with insufficient financial support were informed of the Basic Opportunity Grants, Work-Study Program, and the Placement Office when part-time employment was needed. Many students, as a result, obtained additional financial support.

Following improvement in communication skills, study habits, familiarity with university procedures, the College catalogue, knowledge of financial assistance available, and the development of friendships with other students, the students were able to more easily make the transition to other classes offered by the University.

Tutorial Services. Tutorial services were provided to the students to assist them during their enrollment in the general education classes. A unique characteristic of the tutorial services contributed, to a large degree, to the students' performance in the General Education classes. Specifically, the tutors all were graduate students who majored in the area of the class offering, and even though they had already taken the course, each one attended the class along with the COPE students.

Thus, attending class allowed the tutor to be familiar with the topics covered by each instructor, in order to provide specific tutoring on the topic, whether in individual or group sessions with the COPE students. It also allowed the tutor to identify students who were absent, and subsequently contact COPE staff members who telephoned the student to discuss the reason for the absence. Thus, the tutor served a dual purpose, establishing rapport and providing instruction to the COPE students. Also, the COPE staff members identified students who were absent, and took remedial action to keep the student attending before he was too far behind in class work.

Advanced General Education Options. One major change in the COPE program during the past three years has been in the number and level of General Education courses offered to the students. Additional courses and higher level classes in other departments were made available to the students. Thus, the students enrolled in more advanced courses and in a greater variety of classes. It is important to recall that the COPE students had the option to enroll in regular classes on the campus but tutoral services for the class were not provided by the COPE staff. Enrollment in the advanced General Education courses appeared to assist the students to perform better in the regular enrollment classes on campus.

It was concluded that a key aspect of the program was the sequential arrangement of special classes concomitant with tutorial and counseling services for the students. The students had time to develop the skills necessary to cope, on their own, with normal enrollment classes.

The importance of taking the special classes the first semester on campus was supported by the following observation. The students who began the program as entering freshmen and those who were referred to the program after a semester or more on campus in regular enrollment classes were compared. Many of the students referred to COPE after the first semester had low GPA's as well as attitudes which impeded their performance in college. The second semester referrals required more individualized counseling services than the students who enrolled in COPE from the beginning. Thus, the existing number of staff members in the COPE program was adequate when the students entered the program their first semester on campus. However, the referral students placed an excessive burden of individual counseling on the COPE counselors.

In summary, the COPE program viewed as an intervention technique established by a university for assisting in the retention of low prior educational attainment students from low income families has four major characteristics.

1. Provided special classes and individual counseling services for developing the study practices and skills of the students. Also assisted in creating self-awareness in the context of decision-making for class selection and career exploration for each student.

2. Provided conditions for the students to develop friendships with other COPE students as well as other students on campus. Offered special classes as well as social opportunities through coordination with Ethnic

Studies Coordinators and college advisors.

3. Included tutorial services for students enrolled in specified General Education courses, and for the advanced introductory courses offered by different departments. At the same time, reduced the number of special remedial classes, and condensed the content into two basic classes: Study Practices and Career Awareness.

4. Provided for counseling, advisement, and financial information services at a specific place on campus. Thus, the students came to one office when information or consultation was needed, and obtained help from a person associated with the special program.

III PROCEDURES

The study was conducted with students participating in a special ongoing program at the University. Accordingly, a conceptual model for the study was prepared to describe the context in which the study was conducted. The model describes, by and large, the variables which were delimited for analyses. In addition, the two self-report inventories are described to report the data collection procedures. One of the self-report instruments was developed specifically for the students in this study. The other, a widely-used inventory was examined to determine its generalizability to the low educational attainment multicultural students. In addition, the background characteristics of the three student groups in the study were compared to show the similarity of the COPE students with other students on campus.

A. Conceptual Model for the Study

The cultural environment in New Mexico is comprised of influences from primarily Spanish, Native-American and Anglo values. Accordingly, a variety of background characteristics were measured which, in part, reflected the influences of the cultural environment upon the students. Specific demographic, biographical and prior educational performance variables were measured to provide a profile of the characteristics of the students participating in the study.

Hernandez, for example, in her review of the literature indicated the importance of specific variables in predicting college performance for Spanish speaking students.[1] Astin reported that many of these variables are equally important for Anglo and Black students.[2] The student characteristics can be considered, for the most part, stable variables which reflect the prior experience of the students.

As one measure of the phenomenological world of the student, self-report inventories were used to describe the current attitudes, and occupational interests of the students. All of these variables, in part, are contingent upon the background characteristics of the students as well as the cultural milieu in which the student interacted. The responses to self-report inventories were assumed to be more mutable than background characteristics.

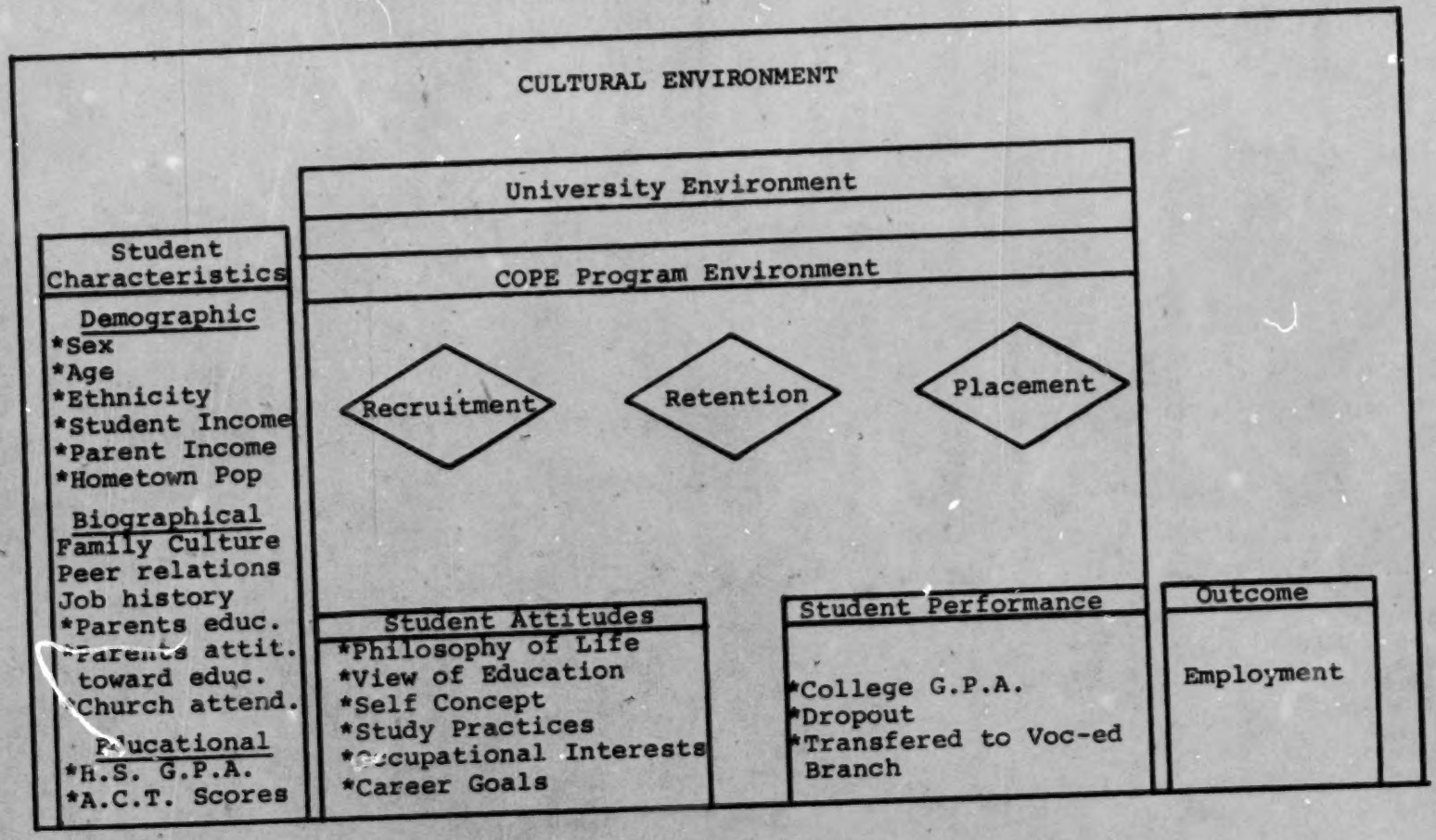
As a means to report the major domains of the variables in the context of the COPE program, a conceptual model was prepared and is presented in Table 2. The conceptual model includes the environment in which the study was conducted, the student variables measured, and the services provided by the COPE program. Thus, the model illustrates the environmental conditions in which the study was conducted.

Student self-reports are changeable and describe, at one point in time, the attitudes of the students toward various topics. For example, one's basic philosophy of life reflects prior experience, but experiences in college as well as other life experiences have effects which change one's philosophy. Moreover, one's expectations about college life may be different after experiencing it for some period of time. Moreover, one's basic view of education as an instrumentality for self-development or as a means to acquire knowledge which can be used to obtain a job may be an important facilitator to college performance.

Occupational interests and career goals also were assumed to be related to college performance. Nafzigger has shown that students were more successful in college if their choice of major was similar to their occupational interests.[3] On the other hand, Hernandez reported that Spanish speaking college students often expressed unrealistic career expectations.[4] Thus, general attributes of an ideal career may be the only self-reports

TABLE 2

Student - Environment
Interaction Model for the
COPE PROGRAM STUDY



*Directly measured in the study

which are sufficiently accurate predictors of college success for lower division multicultural students who have not yet decided upon specific careers. The measures in this study were delimited to attitudes and values associated with education and career interests and goals.

For the lack of a definitive criterion, current college GPA was selected as the measure of college performance. An insufficient number of COPE students had dropped college for dropout/non-dropout to be another criterion. Thus, the criterion for the study was the ability of the COPE program to help students remain in college, and GPA was an indication of how well they were performing academically.

B. Instrumentation

Two self-report instruments were administered to the students in the study. One widely-used instrument, Holland's Self-directed Search (SDS) was used to measure the career interests of the sample.[5] The other Career Education Description Questionnaire (CEDQ) was developed specifically for the study. A detailed description of the construction of the CEDQ and a copy of the instrument is included in Appendices A and B, respectively.

Career Education Description Questionnaire (CEDQ). The instrument was developed to measure the attitudes toward education, biographical characteristics, and career interests of the low prior educational attainment multicultural students. The instrument was developed by factor analytic techniques and is comprised of 14 subscales. The definitions for each CEDQ subscale are reported in Table 3. The CEDQ measures current attitudes toward education and careers in the following general domains:

View of Education refers to how education is perceived as an instrumentality for gaining knowledge.

Study Practices refers to behaviors of the student to prepare homework, participate in class, and study.

Self-Concept refers to behavior and attitudes toward self and interaction with others.

Philosophy of Life refers to basic concepts for perceiving life events and employing behavioral styles for coping with life.

Attributes of an ideal career refers to preferred characteristics of an ideal career.

Self-Directed Search. Holland proposed a theory of vocational choice which asserts that individuals find the greatest satisfaction in environments that are congruent with their personality types, and that they tend to seek out environments similar to their personality type. Furthermore, Holland proposed a classification system for people and environments which consisted of the following six main types or categories: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional.

The literature revealed no studies which indicated that the SDS was generalizable to students similar to the ones in this study. Accordingly, two separate analyses were conducted to determine if the SDS was suitable for the multicultural sample of low prior educational attainment students.

First, an analysis of the responses of 102 COPE students, 58 males and 44 females, was conducted to determine if Holland's hexagonal model of personality types was obtained. A detailed description of the analysis is presented in Appendix D. The results indicated that, by and large, the hexagonal model was replicated for the students in this sample. The model for the males was more congruent to Holland's hexagon than the model for the females. An examination of the SDS factor matrix indicated that Holland's types were distinct and relatively independent. Thus, it was concluded that

TABLE 3

Definitions of CEDQ Subscales

View of Education

Self-development refers to the concept that education helps develop and increase the talents and abilities of a person. Parental expectation and student desire was an impetus for attending college. College is viewed as an opportunity to develop one's own philosophy of life, learn about the cultural values of others, and find new friends. One experiences individual assistance from instructors, and finds friends with other cultural backgrounds. Thus, education is viewed as an instrumentality for self-actualization.

Utilitarian refers to the concept that education is an instrumentality for learning skills that help one obtain a job. Required classes are often not relevant, and the student would like to take only the classes needed for graduation. There is a preference for classes which are practical, and more is learned on one's own than from instructors. Education is viewed as a self-learning experience and one doesn't need a college degree to obtain a good job.

Self-Concept

Inventive refers to social behavior characterized as creative, trying new things and avoiding the traditional. The person usually responds aggressively in competitive situations, and yet can see the humor in many tense situations. Since few opportunities to demonstrate what one can "really do" have occurred, there is an emphasis upon daring behaviors in each new situation. There is an emphasis upon exciting events, and there is often not enough time to finish things that have been started.

Goal directed refers to prior preparation and planning for activities. Rules are made to follow, and prepare the person to handle unforseen events. There is a strong desire to get ahead in life, and one tries hard to get good grades in classes. Many difficult things have been accomplished by planning ahead and working hard for their attainment. One is seldom caught unaware in a new situation.

Social adaptation refers to engaging in friendly social relations with others. Having many friends is important, and one often does what the friends do simply because of the need for friends. It is easy to become apathetic without the stimulation of friends, and the person often acts completely on impulse.

Study Practices

Systematic study refers to routinely scheduled study, and homework has priority over other activities. Assignments are read prior to class and notes are reviewed several days before examinations. The student studies hard to obtain good grades, and performs well in examinations. Thus, the student has a systematic and routine plan of self-directed and independent study.

Procrastination refers to the practice of putting off study and cramming at the last minute for exams. In addition, the student is anxious, worries about flunking out of college, lacks concentration, and finds it difficult to remember what was studied. Also there is a need to improve study habits.

Interactive study refers to behavior indicating active participation in learning experiences. The student participates in class discussions, seeks help from others when needed, and oral or written expression is done easily. Study is done primarily with other students in an interactive situation, and the student has chosen a career after graduation.

Philosophy

Rational refers to a systematic and objective approach to life. The view is held that the universe operates upon discoverable natural laws, and science provides the best way of explaining the universe. Truth is obtainable through the power of the intellect, and one gets ahead by being truthful. Maintaining the rules of a society is more important than the rights of an individual. Thus, one employs logic and planning in their everyday life events.

Temporal describes the concept that seeking personal happiness as an acceptable end in itself. Personal experience is the best basis for making decisions, and all authority should be open for examination. There is no final authority concerning moral values, and moral values should change with the times. Ideas have value only if they can be put to use, and knowledge is open-ended rather than certain. Thus, there is an emphasis upon the present, and future decisions are based upon current individual experiences.

Attributes of a Career

Security refers to a stable and secure career with opportunity for advancement. The ideal job has regular working hours, specified routine activities to perform, and regular promotions based upon time-in-grade. A person has the chance to use one's formal education in the job. Social status income prestige comes and as a result of long term progress within the job. An ideal career has a stable and secure future.

Work with people is characterized by wanting to work with people rather than things. There are many creative activities which are performed and one obtains enjoyment from work. One is in a position to help others, and enjoys working with people from other cultural groups. Thus, jobs are sought that allow the person to help others, and engage in social relations with other persons.

Independence refers to an enterprising, mobile, and self-reliant career. Being one's own boss and relatively free from supervision is an attribute of this career. One is on the road much of the time and visits different regions of the country as a part of the job.

Regional refers to the concept that one finds a career in their hometown near friends and relatives. One can live with parents, and only work when they want. Preference is given to obtaining a job near one's hometown.

the SDS was generalizable to the multicultural sample used in this study.

Second, a survey instrument was constructed to assess student reactions to the SDS, and to determine the "helpfulness" of the SDS to assist students in making choices about a career. The results of the survey are presented in Appendix E and indicated that student reactions were positive towards the SDS. The students found it "helpful," and it stimulated their ideas about careers. Some of the students, however, found it a difficult instrument to score accurately, and others found it excessively long. Although the objections came from only a few students, it appears that the simple form of the SDS could be used with these students.

Characteristics of Comparison Samples. Biographical characteristics for three student groups, COPE, Education, and Voc-Ed were obtained in addition to the responses to the CEDQ. For each group, mean values on each of the characteristics were computed and are illustrated in Table 4. The mean values were computed separately for males and females in each group. A table showing the mean values for the COPE students separated by ethnicity is included in Appendix F.

In general, the three groups were comprised of students with similar biographical characteristics, but it is important to note some of the unique attributes of each group. The Education students, for example, although similar to the other groups in age, had attended college longer (approximately 6 months). The Education students were sophomores and juniors and the COPE and Voc-Ed students were freshmen and sophomores. The Voc-Ed students lived in a hometown which was significantly smaller than the hometown of the other two groups. However, all groups had resided in the towns, approximately the same length of time. Family income was approximately the same for Education and COPE students, but significantly lower for the

TABLE 4

Differences among the
Means for the Biographical Characteristics
of the Comparison Groups

Item***	Groups				
	Cope-M	Cope-F	Educ-M	Educ-F	Voc-ed-F
1. Ethnicity**	(N=123)	(N=133)	(N=60)	(N=109)	(N=143)
Anglo-American	49	65	38	69	78
Spanish-American	56	50	17	37	51
Black-American	10	11	3	1	5
Native-American	8	4	3	3	7
2. Age	2.5	2.2	1.9	1.7	1.8
3. Marital Status	1.6	1.6	1.9	1.7	1.8
4. Education	2.5	2.8	3.6*	3.4*	2.2*
5. Population of home town	3.0	2.8	2.9	3.0	2.6*
6. Years in community	2.9	2.6	2.9	2.4	2.9
7. Church attendance	3.1	3.6*	3.0	3.7*	3.5
8. Parent income	3.4	3.4	3.6	3.7	3.1*
9. Student income	1.9	1.6	1.7	1.7	1.7
10. Father's education	3.2	4.3*	4.1	4.9*	3.6
11. Mother's education	3.2	4.0*	3.9	4.4*	3.7
12. Father's education attitude	4.2	4.7	4.6	4.9	4.2
13. Mother's education attitude	4.5	4.8	4.9	5.0	4.6
14. High School G.P.A.	3.6	4.0	3.9	4.3*	4.0

*Significantly different from the mean of the total group at the .05 probability level

**The frequency count for the number in each ethnic group is given

***Means were calculated on the scales used in the CEDQ booklet

Voc-Ed students. Current student income was the same for all three groups.

The education of both the father and the mother was significantly higher for the education students. The level of education for the parents of the COPE and Voc-Ed students was the same. In addition, more parents of the Education students "actively urged the student to attend college." The high school GPA for all groups was approximately equal.

An examination of all student groups according to sex indicated that females attended church more often than males, had parents who attended college longer, and as high school students attained higher GPA's than the males. In general, the named differences between males and females have often been reported in the literature.

It is also important to note that these male-female differences in biographical characteristics were found when the mean values for the COPE males and females were examined. In addition for the COPE females, both parents "actively urged them to attend college." This is an unusual finding with respect to Madsen's concept of the cultural value of Machismo which purports that Mexican-Americans emphasize independence for males but not for females. In brief, it appears that at least for the COPE students, Spanish speaking families are urging more of their girls to attend college, and that the girls come from families which have attended college longer than the families of the male students.

In summary, an analysis of the biographical characteristics of the COPE, Education, and Voc-Ed groups indicated that the students had many characteristics in common. The characteristics of the groups which were similar included ethnic composition, age, marital status, hometown population, years lived in the community, parent income, student income, and parents attitude toward education. However, the Education students had

approximately six months more college education than the average students and the Voc-Ed females had six months less college than the average. The COPE and Education female students attended church more frequently and had parents with more education than the other groups. Parent income of the groups were the same except for the lower parent income of the Voc-Ed students. All groups had the same high school GPA except for the Education females who were highest among the groups.

IV RESULTS AND DISCUSSION

The attributes of the COPE students were examined by three separate analyses. First, to describe the attitudes of the COPE students toward education and careers, their responses to the CEDQ were compared with those of students with similar background characteristics in Education and the Vocational Education school. The comparison identified some of the attitudes unique to each sample of students pursuing different educational goals.

Next, an analysis of the COPE students as a group was conducted to identify variables which contributed to their success in college. The multiple regression analysis reported the association of biographical characteristics, attitudes toward education, attitudes toward careers, and prior educational performance with cumulative college GPA.

Finally, the predictors of college success for the COPE students were compared with those for the Education and Voc-Ed students. The analysis indicated that although each group of students had similar background characteristics, the current attitudes held by each group contributed to their success in college in uniquely different ways.

A. Attitudes of Comparison Groups

As a way of describing the current attitudes of COPE students, their mean responses to the CEDQ subscales were compared with those for Education and Voc-Ed students. The mean subscale scores for the three groups are reported in Table 5. The scores were standardized to a mean of 50 and a standard deviation of 10 to facilitate subscale comparisons. In addition, scores were computed separately for males and females in each group.

TABLE 5

Mean CEDQ Subscale Scores for
COPE, EDUC. and Voc-ed Students

CEDQ Subscale	Cope M (N=123)	Cope F (N=133)	EDUC M (N=60)	EDUC F (N=109)	Voc-ed F (N=143)
Self-development	49.1	51.2*	47.5	50.9	50.1
Utilitarian	51.5*	48.5*	53.3*	52.2*	46.7*
Systematic	49.2	51.0	44.8*	49.7	51.9*
Procrastination	50.9	49.7	48.2*	50.6	49.7
Interactive	48.9	50.7	52.3*	52.1*	48.0*
Inventive	52.8*	50.4	50.7	49.4	47.5*
Goal directed	50.9	49.8	49.0	50.1	50.0
Social adaption	48.6*	50.2	50.5	50.6	50.3
Temporal	50.4	49.6	49.0	49.8	50.5
Rational	51.9*	49.9	46.4*	47.9*	51.7*
Security	50.0	49.4	46.0*	47.5*	52.9*
Work with people	47.9*	50.9	50.6	53.4*	48.3*
Independence	52.8*	50.2	52.1*	49.7	47.3*
Regionality	50.4	49.6	49.9	48.8	50.6

*Significantly different from 50.0 at 05 level

COPE males were significantly higher on the Utilitarian subscale than were the standardization sample. Thus, the COPE males viewed education as an instrumentality for "obtaining a good job," and the often "learned more on their own than from the instructor." COPE males also were significantly higher on Inventive which indicated they were creative and resourceful students. The significantly low score on Social Adaptation indicated they were not influenced to a great extent by their peers. This occurrence was supported by high scores on Independence which indicated they preferred a career which allowed them to "be their own boss." The COPE males also scored significantly higher on a Rational philosophy of life. The low score on Work with People indicated that this was not a major attribute of their career preference.

In short, the COPE males in the sample were creative and inventive, employed a rational approach to life, viewed education primarily as a means for obtaining a good job, and preferred a career which allowed them independence.

The COPE females, on the other hand, were not significantly different from the standardization sample on any of the CEDQ subscales except Self-development and Utilitarian. The females were high on Self-development, low on Utilitarian. As a major characterizing attribute, the COPE females viewed education as a means for self-actualization and self-development and not only as a means for "obtaining a good job." In short, Self-development was a major "reason" COPE females were attending college.

The Education males, however, scored above average on Utilitarian and below average on Self-development. In other words, the education males viewed college as a means for obtaining a good job and not as an opportunity for self-actualization. The study practices of the Education males indicated they were low on Systematic and Procrastination and high on Interactive.

Thus, they did not employ systematic and independent study habits, and preferred a social and interactive mode of studying class materials with other students. They tended, however, not to procrastinate when it came to studying. The Education males were significantly lower than the norm, for a Rational philosophy which may, in part, reflect non-adherence to a "scientific" approach to life. Security was not an important attribute of an ideal career, but instead the career must allow a high degree of Independence. In short, the Education males appear to be social and interactive, and view education as a means for obtaining a good job which allows them independence.

The Education females also were above the norm for a Utilitarian view of education. They, however, also saw education as an opportunity for Self-development. The female students were high on an Interactive mode of studying, and, similar to the Education males, were below the norm for a Rational philosophy of life. The female Education students, however, viewed Working with people as an important attribute of an ideal career. Security was not an important attribute of an ideal career. In short, the education females were characterized as social and interactive students who viewed education as a vehicle for obtaining a job working with other people.

The Voc-Ed females were significantly below the standardization samples on Utilitarian as a view of education; they did learn more from instructors than if they did it on their own. In addition, the Voc-Ed females were above average on Systematic study practices and below the norm on Interactive study practices. In other words, they appear to have developed an ability for independent study. The female Voc-Ed students were low on Inventive and high on a Rational philosophy of life. Security was an important attribute of an ideal career but Working with people and Independence

were not preferred attributes of jobs. In short, the Voc-Ed females were low-inventive students employing systematic study habits to learn skills which would provide them with an opportunity to obtain a job with security.

To reiterate, the comparison of the three groups of students indicated that each expressed different attitudes toward education and careers. In addition, the males and females within the groups had differing views. In brief, the Voc-Ed students were in the Vocational Technical school to learn skills which would prepare them for a job with security. COPE males were inventive and rational persons who wanted careers which allowed them independence. COPE females, on the other hand, viewed education as an instrumentality for self-development, and preferred careers which provided them with an opportunity to work with other people. Finally, all the education students viewed college as utilitarian, and employed an interactive and social mode of study. Both the male and female Education students were low on a rational philosophy of life and job security was not an important career attribute. The males preferred a career which allowed them independence, and the female Education students, like the female COPE students, wanted a career which allowed them to work with other people.

Although the biographical characteristics of the students were similar, each group held unique attitudes toward education and careers. The next section of the report describes how the attitudes of the COPE students were associated with "success in college."

B. Predictors of College GPA for COPE Students

A multiple regression analysis was computed with biographical characteristics, and the subscale scores for the CEDQ, SDS, and ACT as independent variables and cumulative college grade point average (GPA) as the dependent variable. A total of 38 predictors were used in the

multiple regression analysis. The Pearson product moment correlations, the beta coefficients for the final step, and the beta coefficients for the stepwise regression analysis for each of the predictors is presented in Table 6.

Note that the Pearson correlation coefficients are nearly identical with the final step beta correlation coefficients, and indicated that the variables were relatively independent. The magnitude of the correlations for both the simple and the final step beta's indicated that most of the variables were small and non-significant contributors to the total multiple correlation coefficient. Thus, many different variables contributed to college GPA for the sample.

A stepwise regression analysis enters, one at a time, the variables which have the highest correlation with the dependent variable. The amount of variance added to the total multiple correlation by each new variable is also computed. Thus, it is possible to identify at which step adding additional variables contributes little to the total multiple R. The stepwise procedure identifies the specific variables which contribute the highest amount of variance to the predictive equation.

The results indicated that sixteen predictors accounted for nearly as much variance as did all 38. With these 16 predictors, the multiple correlation coefficient of (.72) was approximately as high as when all the variables were used (.78). Moreover, the multiple correlation of .72 indicated that the predictors accounted for 52% of the variance. In other words, the high multiple correlation obtained indicated that relevant predictors of college GPA had been selected. Next, the salient variables in each group of predictors are discussed separately.

Biographical Data. One significant predictor from the biographical data was the length of time the student lived in the community. The beta

Table 6

Beta Correlation Coefficients for CEDQ, SDS, ACT and GPA for COPE Students

(N=62)

Predictors Biographical	Pearson r	Beta r	Stepwise Beta r
1. Sex	-10	-14	
2. Age	08	13	
3. Education	05	14	
4. Population of home town	21	23	17
5. Years in community	07	08	.30*
6. Church attendance	01	-02	
7. Parent income	11	09	
8. Student income	14	19	
9. Father's education	07	09	20
10. Mother's education	-03	03	
11. Father's education attitude	-23	-19	-41*
12. Mother's education attitude	-09	-10	-23
13. High School GPA	11	14	46*
CEDQ			
14. Self-Development	-01	00	19
15. Utilitarian	-01	-02	
16. Systematic	24	18	20
17. Procrastination	-11	-10	
18. Interactive	-06	-05	
19. Inventive	19	16	14
20. Goal-Directed	05	06	
21. Social adaption	-05	-03	
22. Temporal	14	13	48*
23. Rational	05	04	
24. Security	-16	-19	
25. Work with people	-05	-10	-17
26. Independence	03	02	
27. Regional	-24	-26*	-28*
SDS			
28. Realistic	05	07	
29. Investigative	-01	04	
30. Artistic	01	-03	
31. Social	06	01	
32. Enterprising	-01	01	
33. Conventional	-10	-13	
ACT			
34. English	02	07	-16
35. Math	-16	06	31*
36. Social Studies	-25*	-25*	-43*
37. Natural Sciences	00	07	
38. Cumulative	04	06	
Multiple Correlation	N/A	.78*	.72*

25 is significant at .05 level

correlation (.30) indicated that the longer the student had been in the region, the higher the grades he obtained. It can be recalled from Table 3 that the average residence for the group was approximately four years. Accordingly, all were relatively recent residents in the university community. It appears probable that the correlation reflects, to a large degree, the students who had remained in school, and not dropped out because of poor grades. It may also indicate that persistence, the longer one remains in school, contributed to obtaining higher grades.

The influence of parents upon the student was another significant predictor of college GPA. However, the relationship was inverse with respect to the findings of other studies. In short, students who were not "pressed" by parents to attend college obtained higher grades than students with parents who "actively urged" them to attend college. Moreover, the correlation may also indicate that students were doing well in college in spite of their parents objections to their attendance. The males and females were not separated for the analysis because of the small n, but it can be recalled from Table 3 that parents of females more actively urged them to attend college than did the parents of male COPE students. This is unusual in view of a reputed Spanish cultural value that parents prefer only males to attend college. For this sample, it was a decided reversal of this cultural value. It is important to note, however, that for the COPE students, the lack of active urging to attend college correlated significantly with college GPA. Thus, students were attending college largely on their own initiative, and females obtained higher college GPA's than the males.

Students who formerly resided in larger cities received higher grades than did the students from smaller cities and rural areas. Prior studies have supported this finding.

Prior educational level of the father was positively correlated with the students' GPA. However, as one component to an index of socio-economic status (the other two are occupational level and family income), it is important to note that family income and student income did not correlate with college GPA for the COPE sample. Thus, support was not given to the thesis that SES is an important predictor of college GPA.

Prior Educational Attainment. High school GPA, was a significant positive predictor of college GPA. The finding supports similar findings by Jex, and indicated that the association held for the low prior educational attainment students.[6]

It is important to note that only the Math subscale of the ACT was positively correlated with college GPA. In fact, the English and Social Studies subscales were negatively correlated with college GPA, and the cumulative weighted ACT score was uncorrelated with GPA. Thus, at the lower end of the scale, the ACT was a misleading index for predicting college academic performance with this multi-cultural sample. In a recent study, Duling found that the Miller's Analogy Test was not associated with graduate school GPA for Spanish speaking students.[7]

Vocational Interests. None of the SDS subscales were associated with college GPA. This finding was not unexpected in view of the high number of COPE students who were undecided about a college major, and a career.

Attitudes toward Education and Careers. The CEDQ was designed to measure attitudes toward education and careers in five broad domains. The results of the multiple regression analysis indicated that subscales in each of the five domains correlated with college GPA.

For the View of Education domain, college is viewed as an instrumentality for self-development or as a utilitarian vehicle for preparing one's

self for a career, a positive correlation was obtained between Self-Development and college GPA. Thus, viewing college as a means for self-actualization was associated with higher grades. Viewing college simply as a "ticket for a good job" (Utilitarian) was uncorrelated with college GPA. Thus, for the sample of COPE students, the acceptance of the value of college as an instrumentality for increasing one's knowledge and awareness was positively associated with obtaining higher grades in college.

A second domain of the CEDQ, Study Practices, was also correlated with college GPA. Specifically, the COPE students who employed Systematic study practices obtained higher college grades than those who didn't. It can be recalled from the description of the COPE program that systematic study habits had been taught in a special course for the students, and that apparently this approach to study had been employed by many of the COPE students. In turn, the systematic study practices helped the students obtain higher grades.

The basic philosophy of life one employs also correlated significantly with college GPA. A Temporal philosophy which implies an individualistic and inquiring approach to life stressing that knowledge is open-ended and not certain was positively correlated with college GPA. Moreover, it also suggests that a person experience's life on one's own regardless of prior cultural values, and with a realistic and open mind to new and different concepts and values. In addition, the association may also indicate an acceptance and openness to values encountered in college and an active participation in the learning experiences college offers. It can be recalled that the students were attending college in spite of the ambivalence or, in some cases, an open rejection of college by their parents.

Self-concept, as measured by the CEDQ, was also associated with college GPA. Students who perceived themselves as Inventive obtained higher grades than those who didn't. Inventive, it can be recalled, describes students who want to "try new things," "haven't yet had an opportunity to demonstrate what they can do," and "perform best in tense situations." In addition, they like to "invent new ways to do things." In short, the more creative and inventive COPE students were the ones who obtained the highest grades. The Inventive subscale apparently reflects the ability of the students to employ their creative abilities to adapt to college, and to obtain high grades.

General attitudes about the ideal attributes of a career also contributed to academic performance of the COPE students. Regionality, a cultural value of many Spanish speaking as well as other individuals preferring to live in specific regions, was inversely associated with college GPA. In other words, students who accepted the idea of a "job away from home" obtained higher grades than those who didn't. Thus, students who were more "career bound" and less "place bound" obtained higher grades than those who weren't, thus, in part reflecting the independence of the students to "make it on their own."

Moreover, a desire to "work with other people" also was inversely correlated with grades. Apparently, working with others did not reflect the need for an adequate base of knowledge from which assistance to others could be given. Students scoring low on the desire to "work with people" may indeed be more independent and desire to develop their knowledge in particular areas, and thus account for the ability of these students to obtain higher grades. In addition, low scores on the subscale may also identify people who prefer jobs in technical and less social careers. Work with people correlated positively with the SDS Social subscale and negatively with

the Realistic subscale.

In summary, the multiple regression analysis indicated that for the three major areas of predictors in this study, the most important in rank order importance were (1) prior educational attainment, (2) current attitudes toward education and a career, and (3) background characteristics. The three major areas accounted for, respectively, 28%, 19% and 14% of the total variance among the predictors. Background characteristics and prior educational attainment which are immutable attributes of students cannot be influenced by college experiences. On the other hand, current attitudes and values toward an education are subject to change by specific programs and experiences in college. Moreover, students attifudes were significant predictors of a substantial portion (19%) of the variance associated with college GPA. It appears warranted to conclude that specific attention to the current attitudes of college students is a promising line of inquiry for identity factors which assist in the retention of students in college. In short, attitudes and values are changeable, and specific programs can be designed which provide students with opportunities for self-actualization.

C. Predictors of College GPA for Comparison Groups

Along with prior educational attainment, current attitudes toward education and careers were important predictors of college success for the COPE students, and not for other students with similar background characteristics, the analysis was also computed with the two other student groups. The multiple regression analyses was computed for the Education students and the Voc-Ed students. Thus, contributors to success in college for the three groups of students were compared.

Separate multiple regression analyses were computed with the CEDQ and ACT scores as predictors and college GPA as the dependent variable.

The SDS scores were not used in the analyses because the Education and Voc-Ed students had not completed the instrument. Thus, a total of 32 independent variables were used in the multiple regression analysis, and the results are presented in Table 7. An overview of the results in the table indicate that all three groups had uniquely different sets of predictors associated with college GPA.

COPE Students. The results for the COPE students were by and large the same as when the SDS scores were included in the regression analysis. A few variables were weighted differently as a result of the different set of predictors, but the basic pattern still remained.

Education Students. For the Education students, the older students obtained higher grades than the younger students. However, it was not simply because they had attended college longer, note the lack of correlation for educational level, but instead because they were older. Also the female education students obtianed higher grades than the male students. The income of the parents also correlated positively with GPA, and the "active urging" from the father for the student to attend college also was positively correlated with GPA. Thus, for the education students, the ones who were older females, who came from higher income families and were urged by their father to attend college were obtaining the highest grades in college classes.

Surprisingly, none of the ACT scores for the Education students were associated with college GPA. However, high school GPA was a significant positive predictor of college GPA. None of the attitudes toward education or a career were significantly correlated with college GPA for the education sample. However, a few were sufficiently high for an interpretation. Specifically, an inverse correlation occurred for Education students who

Table 7

Beta Correlation Coefficients for
CEDQ, ACT, H.S. GPA with College GPA
for Comparison Groups

	COPE (N=62)	EDUC (N=151)	Voc-ed (N=60)
1. Sex		19*	
2. Age		13	
3. Education			
4. Population of home town	14		-38*
5. Years in community	35*		
6. Church attendance			14
7. Parent income		14	18
8. Student income			
9. Father's education	34*		
10. Mother's education			
11. Father's education attitude	-35*	16*	
12. Mother's education attitude	-29*		
13. Self-Development			
14. Utilitarian		-09	-31*
15. Systematic	26*		
16. Procrastination		-11	
17. Interactive		11	
18. Goal-Directed	20		-17
19. Inventive			
20. Social adaption	14		-36*
21. Temporal	37*		
22. Rational	14		
23. Security		-13	17
24. Work with people	-19		15
25. Independence			25*
26. Regional	-35*		
27. High School GPA	44*	17*	12
28. ACT English	-16		
29. ACT Math	34*		40*
30. ACT Social Studies	-45*		
31. ACT Natural Sciences			
32. ACT Cumulative Multiple Correlation	.72	.48	.70

*Significant .05 level

viewed education as Utilitarian and college GPA. The students who viewed it as Utilitarian, primarily as a means to obtain a job, received lower grades in college than those who didn't.

The study practices of the Education students also were associated with GPA. Those scoring high on Procrastination received lower grades than those who didn't, and those who employed an Interactive mode of study obtained higher grades than those who didn't. Systematic study practices for the Education students was uncorrelated with college GPA. Education students who perceived Security as a major attribute of an ideal career obtained lower grades in college than those who didn't.

In summary, background characteristics and high school GPA were the better predictors of college GPA for education students than were current attitudes and ACT scores for the education students. Moveover, the total variance accounted for by the predictors (25%) was less than one-half what it was for the COPE and Voc-Ed students. Apparently, the loss in total variance was in part due to the lack of importance in current attitudes toward education and careers for the Education students.

Voc-Ed Students. All the Voc-Ed students were females enrolled in a class to learn shorthand. Thus, the sample was not typical of the range of students normally enrolled in the technical school on campus. However, the sample did provide another comparison group with background characteristics and prior educational attainment similar to the COPE students.

The size of the student's hometown was inversely correlated with college GPA. Students from smaller towns obtained higher grades than the ones from larger cities. In addition, the students who attended church more frequently obtained higher grades than those who didn't.

Parent income also was positively correlated with college GPA. Students from higher income families obtained higher grades than the students

from lower income families. Student income was uncorrelated with GPA, and in like manner for this sample, the father's education was not correlated with grades. Thus, the ability of the family to provide for college expenses was an important contributor to the grades Voc-Ed students receive in college classes.

The Voc-Ed students who viewed college as highly Utilitarian were the ones who obtained lower grades in college classes. Thus, there was an inverse correlation between Utilitarian and college GPA. The students viewing college as something more than a "ticket to a good job" were obtaining better grades than those who didn't. The study practices of the shorthand students were uncorrelated with class grades.

Two measures of self-concept were inversely correlated with GPA for the Voc-Ed students. Specifically, Goal-Directed which measures "it is important to get ahead in life," and "try to get good grades" was negatively correlated with GPA. In addition, Social Adaptation, which in part measures how much the student is influenced by peers also was negatively correlated with GPA. Thus, Voc-Ed students who had realistic short term goals, and were not greatly influenced by their peers, were obtaining higher grades than those who had long term goals and "did what their friends wanted to do."

Attributes of an ideal career were important predictors for the Voc-Ed students. A career with Security was positively correlated with GPA. Also students who wanted to Work with People and those who scored high on Independence obtained higher grades than those who didn't. The Regional aspect of a career was uncorrelated with GPA. Thus, Voc-Ed students who wanted a job working with other people, that provided security and allowed them to have independence, were the ones who obtained the highest grades.

High school GPA correlated positively, but not significantly with college GPA for the Voc-Ed students. The ACT Math score, however, was significantly associated with GPA. Those obtaining high scores on the Math subscale also obtained high grades in the shorthand class. None of the other ACT scores correlated with class GPA.

The total multiple correlation of .70 which accounted for approximately 50% of the variance indicated that a substantial number of the variables contributing to GPA for the Voc-Ed students had been identified.

In summary, the Voc-Ed students who were successful in their technical school classes had the following attributes. The students came from small towns and their parents had sufficient income to support them in school. The students had a short term goal--tak the shorthand class, and not be overly influenced by what their peers wanted them to do. In addition they wanted a job with security, allowed them to work with other people, and one which provided them with independence. Prior educational attainment was not an important contributor to their success in college. Math ability, however, was significantly associated with their ability to learn shorthand in the Vocational Education School.

V CONCLUSION

The study was conducted to identify contributors to success in college for low prior educational attainment students from differing cultural backgrounds. The open admission policy in many universities has increased the number of low prior educational attainment students currently enrolled on campuses throughout the nation. One of the universities, New Mexico State University, established a special program, COPE, to provide counseling and tutorial services to academically "high risk" students. The objectives of the study included describing the background characteristics of the COPE students, comparing the attitudes toward education and careers of the COPE students with other students with similar background characteristics, and finally to examine the predictors of success in college for three groups of students: COPE, Education and Voc-Ed.

A. Summary

The COPE program was established to assist low income low prior educational attainment students from multicultural backgrounds to obtain a college education. The major components of the program included recruitment, retention and placement services for participating students. The retention portion of the program was delimited for analysis in this study. Counseling and tutorial services were provided to assist COPE students while attending classes on campus. Two special courses were designed for the students. One, Individual Study, was designed to teach study skills, for example: note-taking, test-taking, listening, and other individual study methods. Another required class was Career Planning and Development, a course to acquaint students with different careers, and to explore their career interests. The SDS was administered and used as the

basis for vocational and course counseling. The COPE students also had a variety of General Education courses from which to select and they received individual and group tutorial services for the General Education courses. COPE staff also provided individual counseling services, opportunities for students to establish friendships with other students, and information about other services offered on campus. The key components of the program included teaching study skills, awareness of careers, tutoring, fostering friendships among COPE students, and allowing students to choose among alternative general education courses offered on campus.

The background characteristics and current attitudes toward education of the COPE students were compared with two other groups of students. One group was enrolled in an Education course, and the other group was enrolled in a shorthand class in the Vocational Technical School on campus. The background characteristics of the three groups were very similar, but the COPE students differed from the other in terms of their attitudes towards education and careers.

COPE males were inventive and resourceful students who were influenced little by their peers. They employed a rational philosophy of life and preferred a career which provided them independence, rather than simply an opportunity to work with other people. Education was viewed as Utilitarian--preparation for a good job--and they often reported that they learned more on their own than from the instructor.

The COPE females came from families with more education than the males and they were "actively urged" by their parents to attend college. The females viewed education as an instrumentality for self-development and self-actualization. Rather than utilitarian--as an instrumentality for obtaining a good job.

In the analysis of predictors of success in college for the COPE students, attitudes toward education and careers were almost as important as prior educational attainment and more important than the background characteristics of the students. High school GPA was significantly correlated with college GPA, but only the ACT Math score correlated significantly with college GPA; the English and Social Studies subscales were negatively correlated and the other subscales were uncorrelated with GPA. Thus, for the most part, ACT scores were a misleading index of success in college for the multicultural sample of students.

Contributors to "success in college" spanned several domains of attitudes toward education and careers. COPE students viewing education as an instrumentality for Self-Development obtained higher grades than those who didn't. The students who employed Systematic study practices also obtained higher grades than those who didn't. In addition, students with an Inventive self-concept received higher grades than those who didn't perceive themselves as Inventive. COPE students employing a Temporal philosophy of life, indicating for example that knowledge is open ended rather than certain as well as actively participating to achieve short-term goals attained higher grades than students who didn't.

Specific attributes of an ideal career reported by COPE students also correlated with college GPA. Students indicating they would accept employment outside the region attained higher grades than those who did not wish to leave their hometowns. Also, students who wanted a job in which they could work with other people obtained lower grades than those who reported that this attribute was not important to them. Thus, even though COPE students were undecided about a specific career, general attributes of a career were related to their performance in college classes.

The measures of background characteristics, prior educational attainment, and attributes toward education and careers accounted for approximately 50% of the variance associated with college GPA. One finding of the study was the importance that current attitudes toward education had with the grades low prior educational attainment students obtained in college. It appeared that special programs, COPE for example, were helpful to teach specific skills as well as influence a student's attitude toward education and as a result allowed the student to obtain higher grades in college than if they didn't participate in the program. Also important is the notion, as shown by the analysis, that current attitudes toward education as as important as background characteristics and prior educational attainment as predictors of success in college. Thus, programs such as COPE which influence a student's attitude toward education assist students who probably would not otherwise attend a university, succeed in their college classes.

B. Recommendations

Coincident with a study of an ongoing program which is operating "successfully," it is possible to identify factors which may improve the services offered by the program. The purpose of the study was to identify factors contributing to success in college by students participating in the program. The specific variables contributing to "success" have been identified and discussed. Now, however, it is important to note some observations of the program as well as implications from the data which may assist in improving the services offered by the COPE program.

It appears that students who enter the COPE program their first semester on campus have a greater chance of succeeding in college than similar students who "try it on their own," and then participate in COPE after one or more semesters on campus. The study pointed out the importance

of current attitudes of the students, and the transfer students often have not done well on their own, and their attitudes toward education have been adversely effected. Accordingly, it appears that every effort needs to be taken to enroll eligible students in the COPE program during their first semester on campus.

The COPE program, as designed, appears to provide students with skills and attitudes which facilitate the transition to college. Students are taught study skills, career awareness, and obtain tutorial services for the general education classes they attend. An important aspect of the tutorial services is the fact that the tutor attends the class along with the students, and thus is familiar with the content of the class, and the particular emphasis of the instructor. It appears, from observations by the COPE staff that it would be helpful to the students if additional General Education classes with higher course numbers were available alternatives for the students. Thus, students could, under the auspices of the COPE program, pursue a sequence of courses with increasing complexity, prior to this transfer to normal enrollment classes.

The study reported the importance of study practices and college grades. Thus, the required class which teaches study skills appears to be helpful to the students. Moreover, the other required class Career Planning and Development also provided the opportunity for individuals and COPE staff to discuss information about careers. The SDS provided an instrumentality for discussion of careers with the students. Also the students found the SDS "helpful," and the SDS should continue to be used in the class.

In view of the findings that attitudes toward education and attributes of an ideal career were associated with college GPA, it is recommended that the CEDQ or a similar instrument also continue to be used in the COPE pro-

gram. Thus, the instrument may serve as an impetus for dialogue between COPE staff and students about the importance of the student's attitude toward college.

C. Conclusion

A program to provide counseling and tutorial services to low prior educational attainment students was established on a university campus, and was successful in retaining approximately 60% of the participating students. Thus, the program, as it is currently operating was considered "successful."

An examination of the background characteristics of COPE, Education, and Voc-Ed students found that all students were very similar. Then, COPE students are not as "different" from regular enrollment students as commonly perceived.

Current attitudes toward education and careers were an important contributor to success in college, and special program and classes have been designed to foster attitudes which assist students to succeed in college. Accordingly, background characteristics and prior educational attainment are not the only contributors to college success. In fact, ACT scores were a misleading index of probable success in college. The evidence provided by this study did not lend support to the findings of other studies which indicated that socio-economic background was the most important predictor of college grades.

In summary, COPE students are inventive and creative students who are actively participating in the college experience in spite of their parents' adverse view of education. The students also are independent and employ a temporal philosophy of life which allows them to be open and receptive to new experiences and cultural values. Their current attitudes and values toward education are important contributors to their success in college.

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Appendix A

REVIEW OF LITERATURE

THEORIES OF CAREER DEVELOPMENT

At this juncture, there are several theories which define the major thrusts for career development research during the past 25 years. Budke[1] and Herr[2] already have published reviews of the persisting theoretical approaches to career education.

Super[3] reported "a career is the sequence of occupations, jobs, and positions in the life of an individual whether they are or are not vertically and laterally related." In a similar manner, Bush supports Super by indicating that "a career is a term sometimes used to indicate the type of job or the line of work a person pursues.[4] It might be more meaningful to define a career as simply a lifetime of work and learning or the occupational path a worker pursues. A career is made up of tasks, jobs, steps, and levels of work extending over a lifetime. In other words, a career is the sum of all the jobs filling a lifetime."

Developmental Theories

Theories taking a developmental approach to career education, for the most part, describe self-concept as an important component, for example, Ginzberg.[5]

1. Vocational behavior finds its roots in the early life of the child and develops over time.

2. Occupational choice is a developmental process: it is not a single decision, but a series of decisions made over a period of years.

3. The factors which influence the ultimate vocational choice include individual values, emotional factors, the amount and kind of education, and

the impact of reality through environmental pressures.

4. The choice process can be defined in terms of life stages which place different demands upon the individual. Compromises between wishes and possibilities contribute to an irreversibility as the process continues.

Ginzberg contends that occupational choice is a developmental process beginning in early childhood and influenced by family background and experiences which effect the values, emotions, and aspirations of the individual. All these affective behaviors change through the developmental process and ultimately have influence upon career choices.

Super, another developmental theorist, has probably the most persevering approach today which also reiterates the importance of self-concept for career choice.[6]

1. The primary construct in career development is the development and implementation of the self-concept. The individual chooses occupational or educational alternatives which allow him to function in a role consistent with his self-concept.

2. The self-concept is a function of one's developmental history.

3. There is importance to acquiring vocational maturity of occupational information (educational, psychological, and economic) as well as planning, independence, crystallization of interests, and specifications and implementations of preferences.

Tiedeman also points out the importance of early childhood experience in the family as well as noting the significance of rational choices later in life.[7]

1. The evolution of vocational identity is dependent upon early childhood experiences with the family unit, the psychological crises encountered at various developmental stages and the agreement between the society's meaning system and the individual meaning system.

2. The intimacy of self-concept and career concept is to be considered.

3. Career development is a continuing process of differentiating ego identity.

4. The school system or guidance methods can order the stages of career development and personal trends can be given new direction or even reversed.

5. The individual's perceptual structure of work is the gyroscope directing his career.

6. It is possible to choose educational and vocational pursuits on a rational basis.

Along with early childhood family relationships which shape self-concept, Tiedeman points out the importance of the influences of education, counseling, and rational choices about attribtues of a career. He also discusses the importance of developing maturity and ego identity which contributes to the individual's philosophy of life.

Personality Theories

A major assumption of career choice theories from a personality frame of reference is that differences in personality structure reflect different need dispositions of individuals, and the satisfaction of these needs are sought in occupational choices. Accordingly, Roe states that different career areas attract persons of different need dispositions and personalities.

1. Early child rearing practices are related to the kinds of interactions that persons establish with other persons--toward or away from--and with things.

2. Securing opportunities to express individual styles of behavior is inherent in choices made and vocational behavior. Thus, occupational

choices are processes of self-categorization.

3. Occupations can be described in terms of fields which describe an individual's orientation to or away from people or things.

Roe emphasizes the part personality plays in career choice.[8] In addition, she points out the importance of a person'e orientation toward or away from people or things as an important attribute of career choice. Roe also discusses the role of education which is necessary for complex jobs, and the importance of increased concern with occupational clusters.

Holland emphasized hierarchies within occupational clusters requiring different amounts of education as well as the importance of self-knowledge in relation to choosing.[9] His theoretical tenets include:

1. Self-knowledge is important to the individual's movement through educational decisions to occupational environments.

2. People seek those settings and occupations, including curricula, which permit expression of their personality styles.

3. Personality types and career environments can be classified on a similar basis.

Decision-Making Theories

Decision-making is the major emphasis of a number of other theories of career choice. Basically, individuals have several alternatives among which to choose, and each event has a value to the individual as well as a probability of occurrence. A sound decision occurs when the alternative has an optimum value.

1. Brayfield and Crites report that choice occurs under conditions of uncertainty or risk.[10]

2. Decision-making includes identifying and defining one's values; what they are and what they are not.

Risk-taking is an important variable to Brayfield and Crites in the context of career decision-making. Decision-making is also related to the philosophical values and attitudes held by an individual.

Herr also discussed the importance of socio-economic background as an influence upon expectation/aspiration differences for careers. He points out that a person from a disadvantaged background may see himself as unable to attain his aspirations where one from an advantaged socio-economic background may be able to fulfill his aspirations.

Herr suggested a number of concepts which describe existing theories of career development and the need for further research.

1. Children learn to see themselves as inferior or superior and their self-perceptions are related to self-concept development, mastery of developmental tasks, and career decisiveness or indecisiveness.

2. Career development can be described in terms of learning tasks which are important at each stage of personal development. Individuals differ in their readiness for career development, and their differences have something to do with the values and attitudes related to socio-economic backgrounds.

3. Career development is modifiable and should be reinforced by many educational experiences and the attitudes of those who monitor the experiences.

4. The potential exists to identify the attitudes, knowledge and skills which contribute to career maturity or development.

5. Cognition about courses of action as well as self is central to all existing theories, and seem to require the student to develop a theory about himself.

Herr indicated a need for research on socio-economic factors influencing career development, achievement motivation, career motives and

occupational valuing.

Theories of Person-Environment Relationships

Considerable research has been conducted on person-environment relationships. Some of the investigators have developed theories in regard to person-environment relationships, but much of the research which has been conducted is isolated and non-theoretically based. Accordingly, the following describes several of the major theoretical positions concerning person-environment relationships.

Barker contends that environments select and shape the behaviors of people who inhabit them, and people tend to behave in highly similar ways in specific environments regardless of their individual differences in perceptions.[11] Thus, it is postulated that environments have a coercive influence upon human behavior. Specifically, Barker bases her theory upon three basic assumptions:

1. Media (people) comply with the forces of the thing (environmental setting): people have a propensity to be receivers and transducers in response to the pattern of forces in the behavior setting.

2. Environmental settings impose its pattern upon people via its own driving forces.

3. If the docility of the media (people) and the driving forces of the thing (environmental setting) are measured it may be possible to account in some degree for the consequences which occur across person-environment boundaries.

Research testing the theoretical assumptions of Barker has been directed toward behavior differences between inhabitants in small behavior settings and inhabitants in large settings. The research supported the notion that inhabitants in small behavior settings are for the most part involved in

more actions, stronger actions, and more varied actions than in large behavior settings. A review of studies conducted to test Barker's theory is presented by Walsh.[12]

Clark and Trow hypothesized that certain broad patterns of student orientation toward college give meaning to relationships among students.[13] Moreover, these orientations may be identified as subcultures if they tend to stimulate shared perceptions and behavior among students exhibiting a common orientation. The four orientations or subcultures emerge from the combination of two dimensions: (1) the degree to which students identify with ideas, and (2) the degree to which students identify with their college. Clark and Trow provide the following description of the four subcultures: Academic, Nonconformist, Collegiate and Vocational.

The Academic subculture is composed of serious students who are involved with ideas and identify with their college. They tend to work hard, achieve high grades, and talk about their academic work outside of class. In general, these students pursue ideas and knowledge.

The Nonconformist subculture is composed of students who are involved with ideas, but they tend not to identify with their college. This subculture seems to value individualistic styles, concern for personal identity and self-awareness, and often contempt for organized society.

The Collegiate subculture is composed of students who tend to be loyal to their college but indifferent to serious intellectual demands. Students in this subculture tend to value social life, extra-curricular activities, athletics and intimate friendships. Thus, this subculture emphasizes the social and extra-curricular component of college life.

The Vocational subculture is composed of students who tend not to be intellectually oriented. In addition, these students have little involvement

with their college. These students view college as off-the-job training leading to a diploma and a better job which they could not otherwise obtain. In sum, members of this subculture are primarily interested in obtaining training for a specific career in their chosen field.

No research, as yet, shows that students reporting a common orientation actually interact with each other as proposed by the theory. Nor is their evidence, at this time, that students enter and participate in interactional environments congruent with their major subcultural orientation.

Newcomb et al., have explored student types and subcultures at Bennington College.[14] Newcomb assumed two basic dimensions (individualism and intellectuality) existed independently and was helpful in forming a model of the social structure of the student body. These two dimensions were associated with the six student types which were proposed in the model: Creative Individualists, the Wild Ones, the Scholars, the Social Group, Leaders, and Political Activists.

Subsequent research for the most part was successful in discriminating between the types on a number of variables, for example: personality, self-ratings, conventionality, small task, serious conversation, political attitudes, community participation, personal background, interests, and status. Thus, background variable, attitudes and interests had residual influences associated with differing types of students attending college.

To Holland, human behavior is a function of personality and environment.[15] Holland also proposes that vocational choice is, in part, an expression of personality, and empirically it appears that vocational preferences are moderately related to personality. Conversely, because vocational preferences are correlated with vocational interests, it is plausible to assume that vocational interests are in part an expression of personality. He further

contends that vocational interests are not isolated, but instead a product of an individual's life history (heredity, culture, personal forces, and the physical environment), and that preferences for occupations are expressions of personality which has developed from accumulated life experiences in differing environmental settings. A final assumption is made that congruent person-environment relationships lead to outcomes that are predictable from knowledge of personality types and environmental models. The outcomes include, for example: vocational choice, vocational stability, vocational achievement, personal stability, creative performance, and personal development.

Validation research has been conducted in support of Holland's theoretical position. A partial annotated bibliography of studies was prepared by Holland, Nafziger, and Gottfredson.

Pervin proposes a transactional theory of person-environment interaction.[16] At the base of the theory is the assumption that human behavior can be understood in terms of the interactions (cause-effect relationships) and transactions (reciprocal relationships) between the individual and his environment. It was proposed that a match of individual to environment will probably contribute to a higher degree of performance and satisfaction. A low degree of fit will probably result in decreased performance and dissatisfaction. Pervin contends that performance and satisfaction may be analyzed best as a function of the interaction among individual, task, and situational or environmental variables.

Pervin's transactional approach is based on a cognitive balance orientation. The following two assumptions are made about cognitive consistency or balance: (1) it is assumed that cognitive consistency allows individuals to predict more accurately and behave more effectively in their interactions with others, (2) there is a basic tendency for individuals to

attempt to reduce imbalanced states such as cognitive dissonance and inconsistency.

Studies of the Spanish-Speaking

Madsen,[17] a cultural anthropologist, observed Mexican-Americans in south Texas and described some of the cultural values unique to persons of this heritage. The study conducted in 1964 has been controversial and included many stereotypic observations which persist today and in many cases remain unresolved from the standpoint of objective research findings. In addition, Burma,[18] Knowlton,[19] Loomis,[20] Croft,[21] Kluckholn,[22] Stoddard,[23] Vogt,[24] and Griffiths[25] also have conducted studies related to the cultural values of the Spanish-speaking in the Southwest.

Madsen describes the meaning of La Raza (the Race). The term refers to all Latin Americans who are united by cultural and spiritual bonds derived from God. The concept of La Raza is a cultural value which provides cohesiveness and identity among Spanish-speaking in the American milieu. Accordingly, peer pressure as well as other leveling mechanisms are brought to bear upon the Spanish-speaking student who obviously adopts values of the Anglo culture.

Machismo, another cultural value of Mexican-Americans, is primarily defined by the concept of manliness. Man is stronger, more reliable, and more intelligent than the female, and this paternalism is a cultural value which provides more independence to men than it does for women. The male is the one who represents the family and the female is not usually offered the opportunity for independence. In recent years, however, many Spanish-speaking women are attending college in spite of the objections from family members.

Knowlton reported that the solidarity of the extended family is another important cultural value of Mexican-Americans and consists of extremely strong ties to family. The extended family includes all living relations of the parents and each household is located as near as possible to the others. The family members are strongly linked by mutual aid and respect. Thus, many Mexican-Americans prefer to remain in locales where family and relatives reside.

The value conflicts of the Mexican American are multiplied with the acceleration of transculturation. Many individuals are caught in the dilemma involving the internalization of conflicting Anglo and Latin values. When this situation arises, it often prevents the individual from achieving in the Anglo world.

Thus, as Stoddard states, mañana becomes a reality to many, and although they want to accomplish, it can be done "tomorrow" just as well as it can be done today. A key concept associated with mañana is that the idea is accepted and not rejected, and the task will be accomplished in due time. On the other hand, many students come from "agringado" homes where parents have identified strongly with the Anglo world, and the family demands high grades and a future orientation in spite of the lack of good job opportunities for Mexican-Americans in many regions of the country. Many Mexican-Americans who attend college don't seem to know what they want out of an education, but are in college simply because of the stress for education by their parents. In addition, many Mexican-Americans having achieved status in the English speaking world see science, technology and progress as the keys to a brighter tomorrow.

An educated person is one who has been well trained as a social being. Educated persons display both polish and courtesy (urbanidad) in

social relationships. A person lacking in urbanity may be characterized as inexperienced, and shortcoming best blamed on circumstances. A proper relationship between experienced persons must preserve the dignity and individuality of each, and a person may think as he pleases but should not try to impose his ideas on anybody else.

Pace provided a review and analysis of published measuring instruments that are in current use by students and institutions of higher education, and he contends that although there exists many good instruments there is a need for the development of new ones.[26] Pace specifically proposed designing instruments which cut across subject-matter areas, and measure knowledge of basic concepts, for example, probability, cultural relativity, cultural integrity, ecology, and psychoanalytic concepts of human nature and behavior.

Pace also proposed a major shift in the focus of testing and attitude measurement. Specifically, "Educators interest lies in the objects to which and the way in which powers of intelligence are applied to values, interests, skills, knowledge and appreciation are changed by education...Increased efforts to measure directly a variety of educationally relevant interests, attitudes, appreciations, and values will contribute to theories of personality more than will efforts to devise measures of traits."

Of particular importance in this study was the assessment of interests, values and attitudes of students from the Spanish speaking culture. Were there measureable differences in attitudes, interests, and values stemming from their cultural background? Where there other differences due to the low educational attainment in prior schools? Moreover, was it possible to identify attitudes, interests, and values which were contributing to their academic performance in college.

The current controversy relative to "culture free measures" was the impetus for developing ways of measuring the attitudes of the Spanish

speaking students. Many instruments measuring attitudes and values have not been examined to determine if they were culture free or not. Accordingly, a new measure of attitudes related to career education was constructed--not for the purpose of adding one more instrument to the plethora that already exists, but instead an instrument which was constructed specifically for the low educational attainment Spanish-speaking student. Thus, the purpose of the instrument was to, as objectively as possible, identify constructs used by Spanish speaking lower division students to describe their perceptions of attitudes toward college and careers. In short, the instrument was designed to measure the phenomenological world of the Spanish speaking student attending college in a special program designed to overcome prior education as well as cultural values which conflicted or supported the students' pursuit of a college education. An identification of some of their attitudes, values, and interests might provide a basis for improving the services offered to the students.

Appendix A

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Appendix B

DEVELOPMENT OF THE CAREER EDUCATION DESCRIPTION QUESTIONNAIRE

Many studies have identified variables contributing to student success in college. Jex concluded that high school GPA was the most significant predictor of college grade point average.[1] Astin[2] and Pace[3] reported that the attributes of the institution also were contributing factors to student success in college. Blanton and Peck indicated that the study habits of students were associated with college performance.[4]

Nafziger stated that college students with Holland SDS codes most similar to their college major were more satisfied with college than students with SDS codes not congruent with their major.[5] Bartee found that the self-concepts of disadvantaged college students were "better" than those of other disadvantaged persons.[6] Van Meter reported an association between an individual's personal philosophy of life and the choice to involve others in decision-making or to make decisions on one's own.[7]

Some authors have reported that Spanish speaking students have value systems which influence their educational and career choices. Madsen, for example, describes the lack of goal orientation for Mexican-Americans.[8] Croft reported that economic conditions influenced the cultural values of Spanish speaking persons in northern New Mexico.[9] Knowlton described many cultural values of the Spanish speaking and discussed in detail the concept of the extended family.[10] Stoddard described the individualism of the Spanish speaking,[11] and Samora and Lamanna contended that Mexican-Americans lacked a drive for upward mobility.[12]

Cordova stated that minority students felt that material taught in school was irrelevant to their real problems.[13] Carter reported the extremely

high school drop-out rate for Mexican-Americans,[14] and indicated that a negative self-concept was associated with low educational attainment for Mexican-American students.[15] Duling described a special program for assisting low prior educational attainment Spanish speaking students to adjust to and cope with college.[16] Of particular significance is Astin's study which identified variables which help prevent students from dropping out.

Reviews by Buros,[17] Bonjean,[18] and Wylie[19] indicated that many instruments exist to measure attributes of students such as self-concept, openness, values, and study habits. However, little evidence exists that the instruments are culture free or have been validated with Spanish speaking college students. Moreover, little research has been conducted to assess if the values, attitudes, interests, and behaviors of Spanish speaking students which are associated with education are indeed different from other cultural groups attending college.

An analysis of attitudes related to education and careers may provide a basis for improving guidance, counseling and educational services offered to low prior educational attainment college students.

Purpose

This report describes the development of a research instrument, the Career Education Description Questionnaire (CEDQ). The instrument was designed to measure attitudes of individuals toward self, education and careers.

The basic attitudes and values that students bring with them to college from varying cultural backgrounds, may be associated with adjustment to college life or in other cases act as an impetus to leave college and seek employment. Thus, an identification of attitudes related to the role of education as preparation for a career may be helpful to students making decisions

about an appropriate career.

Sources for the Items

Obtaining items from a variety of sources is basic to the development of a measuring instrument. This technique is one way of securing a broad span of statements for inclusion in the final instrument, and helps preclude inadvertent measurement bias from specific single sources. Thus, items from a multiplicity of sources contributes to the development of instruments which measure relevant facets of a topic.

One major source used to create the item bank for the CEDQ was the literature pertaining to success in college for English speaking as well as Spanish speaking students. Additional sources included publications describing the cultural values of the Spanish speaking. The sources were content analyzed to identify statements which stimulated the development of items for the preliminary form of the instrument. The concepts of cultural values as well as those related to success or failure in college served as an impetus for writing specific items.

Another primary source of items was from university staff members who work with students from differing cultural backgrounds. The personal experiences of university staff members who counsel and socialize with students from Spanish speaking cultural heritages was a seminal source of items for the CEDQ.

Attitudes and values change, and as an additional source of information about contemporary educational philosophy and attributes of an ideal career, college students themselves provided input to the construction of items. Catchwords, phrases, and slang expressions of students were examined as possible sources for items. Students also examined items which already had been obtained for relevancy in addition to contributing specific items from their own

experience in college. Thus, input from students with fresh, creative and individual viewpoints was obtained.

A final source of input to the item bank was by the project investigators. Items were "arm-chaired" and keyed to the investigator's conceptions of concepts related to educational philosophy and career choice. Brainstorming sessions were conducted in which the project staff freely exchanged ideas, and offered statements which contributed to the development of the item bank. The investigators relied heavily upon personal knowledge and experience working with persons from varying cultural backgrounds.

Item Selection Techniques

Several hundred statements relating to educational philosophy, college performance, and career attributes were obtained from different sources. Many of the statements were not in a form acceptable for inclusion in a questionnaire; they simply were notes taken during discussions and interviews. Also, some of the statements included several concepts, from which one or more specific items were written. The statements were analyzed and items were constructed according to the standards proposed by Adkins[20] and Sax.[21]

Then the items were classified into sets of items which described the major domains to be measured by the instrument. At this stage of the development of the CEDO, prior literature including empirical studies as well as philosophical publications were used to identify the categories for the classification of the items.

Broudy, for example, contends that the aim of education is the "good life" and involves self-determination, self-realization and self-integration.[22] Durkheim notes that education varies with the particular social context since it serves societies needs.[23] MacIntyre, however, offers the caveat; when

education is utilitarian, means become ends and ends become means, and both society and education suffer.[24] Accordingly, these authors, among many others provided the basic notion: How is education viewed by the student?

Astin, among many, pointed out the importance of study practices in relation to success in college, and this concept was employed to identify another domain included in the classification model. Wylie, also denoted that self-concept was an important factor related to college performance. Hernandez also indicated that Mexican-American students may have self-concepts which differ from other students because of the cultural environment in which they were raised.

Van Meter indicated that a person's philosophy of life may be a more basic index of the influences of culture than measures of personality. Thus, it appeared that a student's philosophy of life was another domain to include in the classification system.

Many authors, Holland, for example, have developed instruments for measuring specific career interests. However, no studies were found which measured a student's ideas of the general attributes of an ideal career. In other words, attributes which could apply to many clusters of jobs. This appeared important, especially if the students were undecided about specific careers.

From the literature, a number of domains were identified which assisted in the development of a classification system for organizing the items. The items were arranged in clusters according to the following domains.

1. View of education refers to how education is perceived as an instrumentality for gaining knowledge.

2. Study practices refers to behaviors of the student to prepare homework, participate in class, and study.

3. Self-concept refers to behavior and attitudes toward self and interaction with others.

4. Philosophy of life refers to basic concepts for perceiving life events and employing behavioral styles for coping with life.

5. Attributes of an ideal career refers to preferred individual characteristics of an ideal career.

Thus, the format of the CEDQ was designed to include clusters of items associated with each of the above five domains. The arrangement of the items in specific domains was employed to establish a psychological "set" for the respondent as a means to obtain more accurate ratings of the items describing each domain.

The CEDQ included 16 items describing biographical information about the respondents and 112 items arranged in the five domains. Although the instrument was long, more items were included in the preliminary form because items would be eliminated during the statistical and semantic analysis of the instrument.

The Sample

The sample used to develop the CEDQ was lower division students enrolled at New Mexico State University. The total sample included 570 students with low prior educational attainment as well as other students with similar characteristics in different programs on campus. The characteristics of the sample are presented in Table 1.

The sample was composed of approximately twice as many females as it was males, and this percentage reflected the number in the program. Note, also that the students were primarily single, enrolled in lower division classes, non-veterans, and 18-21 years old. Most of the students can from cities with populations ranging between 10,000 and 50,000, but many formerly

Table 1

Characteristics of the Sample

(N=569)

Characteristic	Frequency
Sex	
Male	184
Female	385
Age	
18 or younger	128
19-21	292
22-25	80
26-29	29
30 or older	40
Ethnicity	
Anglo American	299
Spanish American	215
Black American	30
Native American	25
Marital Status	
Single	415
Engaged	19
Married, no children	51
Married, with children	61
Widowed, divorced or separated	23
Military Service	
Non-Veteran	467
Reserve or Guard	10
Veteran	52
Other	40
Education	
Freshman	282
Sophomore	173
Junior	76
Senior	34
Graduate	4
Hometown Population	
blank	31
2,500 or less	103
2,501-10,000	102
10,000-50,000	209
50,001-100,000	56
100,000-500,000	42
500,001 or more	26

resided in small towns or were from very large urban areas. The sample included 299 Anglo American students and 215 Spanish speaking students. The number of Black and Native American students was considerably smaller; 30 and 25, respectively,

Component Factor Analysis of CEDO

Factor analytic techniques have been used frequently for constructing measuring instruments. Harman reports an overview of the historical developments in the factor analytic approach.[26] Component factor analysis was selected as the statistical technique for analyzing responses to the CEDO. In addition, the techniques reported by Horst,[27] and Comrey,[28] and Halpin and Croft[29] which employ semantic as well as statistical criteria were used to retain items for the instrument.

Briefly, component factor analysis assists classifying items into homogeneous sets. After the items are factor analyzed, a content analysis is conducted to identify a common underlying relationship among the clusters of items. Then, a name for the construct describing the common relationship is assigned to the cluster of items. The name reflects the semantic relationship among all the items in the cluster. Traditionally, the procedure allows an investigator to infer the number and type of basic concepts employed by a sample when responding to a questionnaire. The factor analysis shows which items are perceived in common clusters by the sample, and the semantic analysis identifies the underlying conceptual association among the sets of items.

Component factor analysis and Varimax rotation were computed with the 112 items of the CEDO. Separate analyses were computed for each of the five domains. Two, three, or four factor solutions depending upon the domain were found to be the optimum number of factors to rotate.

Items were not retained if they did not fit the semantic orientation of the item set or failed to obtain a near .40 factor loading on the appropriate factor and relatively low or near zero leadings on the remaining factors. Based upon the statistical and semantic analysis, a total of 28 items were excluded from the CEDQ. In addition, the factor analyses indicated that 14 relatively independent factors were measured by the 84 items retained in the instrument.

The factor matrices for the CEDQ are presented in Table 2. Note, the items have been rearranged into item clusters measuring the specific factors. Each item was abbreviated, and the complete item statement is included in the CEDQ form in Appendix A. The item numbers in the table correspond to the numbers in the booklet. In addition, the eigenvalues, communalities, percent variance accounted for by each factor, and the coefficient alpha reliabilities are included in the table.

The items, for the most part, obtained high factor loadings on the appropriate factor, and lower or near zero factor loadings on other factors. Thus, the CEDQ has relatively high factorial purity. However, in some cases it was necessary to assign items to a cluster to increase the reliability of the subscale. In this case factoral purity was reduced to obtain higher reliability for the subscale.

The Constructs Measured by the CEDQ

The item sets separated by factor analytic procedures were content analyzed to identify a common underlying relationship among the items in each cluster. A name was assigned to the common relationship, and definitions were written to identify the construct describing the common relationship. The definitions for the constructs measured by the CEDQ are presented in Plate I.

Table 2

View of Education
Principal Components Factor Analysis and
Varimax Rotated Factor Matrix for
Career Education Description Questionnaire
(N=570)

No.	I	II	h^2	Item
				Self-development
35	50	-12	26	College helps one learn culture of others
36	33	09	13	Parents expected me to go to college
37	54	-19	33	Education develops one's own philosophy
38	48	-14	25	Instructors provide individual assistance
44	63	-11	41	Learn much in college courses
39	30	12	10	College helps find friends with other cultures
43	47	08	22	Jobs open to all cultures
45	68	05	47	College is a place to find friends
46	48	-02	23	I wanted to attend college
				Utilitarian
27	-12	54	30	Learn more on own than from instructor
28	-19	30	13	Like only classes I need for graduation
29	03	63	39	Required courses not relevant
30	25	52	33	Like classes that are practical
33	-05	45	21	Don't need degree for good job
25	34	50	36	Aggressive in competitive situations
	2.5	1.6		Eigenvalue
	.17	.28		Percent variance
	.61	.38		Alpha reliability

Table 2 (cont.)

Study Practices

No.	I	II	III	h^2	Item
					Systematic Study
47	64	-04	17	44	Work hard to get good grades
56	57	07	37	47	Use dictionary for words I don't know
57	60	11	19	42	Read assignments prior to class
58	64	-08	16	44	Review class materials before exam
65	61	-05	-01	37	Homework has priority over things
66	46	09	12	23	Perform best during an exam
67	70	-01	09	50	Do homework on a regular basis
					Procrastination
49	-58	47	30	64	Put off homework
51	23	64	-19	51	Have difficulty remembering during exam
53	23	49	-27	37	Worry about flunking college
63	-12	67	08	47	Mind wanders when trying to study
64	-36	55	15	45	Cram the night before exam
70	02	63	-04	41	Need to improve study habits
					Interactive Study
48	13	13	52	31	Have selected a career
55	39	15	43	31	Obtain help if don't understand
60	10	-22	66	49	Easily express myself orally
61	02	-09	61	38	Easily express thoughts in writing
62	13	94	52	29	Anticipate what instructor asks on exam
68	24	-05	58	39	Participate actively in class discussion
	3.9	2.2	1.9		Eigenvalue
	.21	.32	.42		Percent variance
	.77	.60	.57		Alpha reliability

Table 2 (cont.)

Self-Concept

No.	I	II	III	h^2	Item
					Inventive
13	47	-14	13	26	Few opportunities demo what can do
16	66	-15	05	46	Invent new ways to do things
21	53	-13	-06	30	Seldom have time to finish all
22	73	90	04	55	Am always trying new things
23	60	00	15	39	See humor in tense situations
30	46	-34	30	42	Perform best in tense situation
					Goal-directed
71	04	63	09	40	Is important to get ahead
73	29	49	-04	32	Have accomplished difficult things
74	14	72	-02	54	Try to get good grades
15	28	60	-04	44	Plan ahead for things
20	03	39	32	25	Am seldom caught unaware
29	-10	58	01	34	Rules are to be followed
					Social adaptability
12	16	-34	32	24	Having friends is important
17	41	-13	60	54	Act completely on impulse
18	13	-05	60	38	Become apathetic and not try
19	-09	01	74	58	Do what friends want to do
26	33	36	37	38	Do things for others
27	-01	29	36	21	Know rules before committing self
	3.7	1.8	1.4		Eigenvalue
	.21	.31	.39		Percent variance
	.44	.61	.48		Alpha reliability

Table 2 (cont.)

Philosophy of Life

No.	I	II	h^2	Item
				Temporal
33	64	-02	41	No final authority for morals
34	66	-03	43	Seeking happiness is acceptable end
35	42	25	24	Ideas have value only if used
36	41	28	25	Knowledge open-ended not certain
37	58	08	34	All authority open to examination
38	65	04	42	Personal experience best for decisions
39	62	20	42	Morals should change with times
47	40	24	22	Individual is responsible to self
				Rational
31	08	56	32	Rules more important than individual rights
40	29	64	49	Science provides best explanation of universe
41	25	68	48	Truth obtainable by human intellect
45	02	39	16	Technology has made world better
49	12	60	37	Universe operates on discoverable laws
50	-08	64	42	Get ahead by being truthful
	3.5	1.5		Eigenvalue
	.25	.36		Percent variance
	.60	.55		Alpha reliability

Table 2 (cont.)

Attributes of a Career

No.	I	II	III	IV	h^2	Item
						Security
55	52	07	27	20	39	Earn considerable money
57	54	04	22	28	43	Social status and prestige
60	69	07	06	08	49	Have specific activities to perform
62	61	35	05	18	53	Stable secure future
66	58	27	-09	16	44	Regular working hours
68	68	03	22	13	53	Time-in-grade promotions
71	59	21	10	-[illegible]	41	Bases on formal education
72	66	20	26	-0	55	Opportunity for advancement
						Sociality
56	08	59	24	19	45	Engage in creative activities
61	06	75	-04	05	56	Work with people not things
64	15	80	04	05	67	In position to help others
73	31	63	07	03	50	Obtain enjoyment from job
74	32	51	17	01	39	Work with persons, other cultures
						Independence
52	09	17	65	-04	46	Be "on the road" much
63	16	31	54	13	43	Free from supervision
65	04	39	41	23	38	Be own boss
67	10	18	68	-16	53	Live in different regions
						Regionality
53	02	16	-04	66	47	Remain near friends
54	04	27	37	50	46	Work when want
58	28	14	-10	71	62	Remain near parents
69	30	24	02	65	57	Remain in hometown
	5.5	1.9	1.5	1.3		Eigenvalue
	.26	.35	.42	.49		Percent variance
	.76	.68	.40	.40		Alpha Reliability

PLATE 1

Definitions of CEDQ Subscales

View of Education

Self-development refers to the concept that education helps develop and increase the talents and abilities of a person. Parental expectation and student desire was an impetus for attending college. College is viewed as an opportunity to develop one's own philosophy of life, learn about the cultural values of others, and find new friends. One experiences individual assistance from instructors, and finds friends with other cultural backgrounds. Thus, education is viewed as an instrumentality for self-actualization.

Utilitarian refers to the concept that education is an instrumentality for learning skills that help one obtain a job. Required classes are often not relevant, and the student would like to take only the classes needed for graduation. There is a preference for classes which are practical, and more is learned on one's own than from instructors. Education is viewed as a self-learning experience and one doesn't need a college degree to obtain a good job.

Self-Concept

Inventive refers to social behavior characterized as creative, trying new things and avoiding the traditional. The person usually responds aggressively in competitive situations, and yet can see the humor in many tense situations. Since few opportunities to demonstrate what one can "really do" have occurred, there is an emphasis upon daring behaviors in each new situation. There is an emphasis upon exciting events, and there is often not enough time to finish things that have been started.

Goal directed refers to prior preparation and planning for activities. Rules are made to follow, and prepare the person to handle unforseen events. There is a strong desire to get ahead in life, and one tries hard to get good grades in classes. Many difficult things have been accomplished by planning ahead and working hard for their attainment. One is seldom caught unaware in a new situation.

Social adaptation refers to engaging in friendly social relations with others. Having many friends is important, and one often does what the friends do simply because of the need for friends. It is easy to become apathetic without the stimulation of friends, and the person often acts completely on impulse.

Study Practices

Systematic study refers to routinely scheduled study, and homework has priority over other activities. Assignments are read prior to class and notes are reviewed several days before examinations. The student studies hard to obtain good grades, and performs well in examinations. Thus, the student has a systematic and routine plan of self-directed and independent study.

Procrastination refers to the practice of putting off study and cramming at the last minute for exams. In addition, the student is anxious, worries about flunking out of college, lacks concentration, and finds it difficult to remember what was studied. Also there is a need to improve study habits.

Interactive study refers to behavior indicating active participation in learning experiences. The student participates in class discussions, seeks help from others when needed, and oral or written expression is done easily. Study is done primarily with other students in an interactive situation, and the student has chosen a career after graduation.

Philosophy

Rational refers to a systematic and objective approach to life. The view is held that the universe operates upon discoverable natural laws, and science provides the best way of explaining the universe. Truth is obtainable through the power of the intellect, and one gets ahead by being truthful. Maintaining the rules of a society is more important than the rights of an individual. Thus, one employs logic and planning in their everyday life events.

Temporal describes the concept that seeking personal happiness as an acceptable end in itself. Personal experience is the best basis for making decisions, and all authority should be open for examination. There is no final authority concerning moral values, and moral values should change with the times. Ideas have value only if they can be put to use, and knowledge is open-ended rather than certain. Thus, there is an emphasis upon the present, and future decisions are based upon current individual experiences.

Attributes of a Career

Security refers to a stable and secure career with opportunity for advancement. The ideal job has regular working hours, specified routine activities to perform, and regular promotions based upon time-in-grade. A person has the chance to use one's formal education in the job. Social status income prestige comes and as a result of long term progress within the job. An ideal career has a stable and secure future.

Work with people is characterized by wanting to work with people rather than things. There are many creative activities which are performed and one obtains enjoyment from work. One is in a position to help others, and enjoys working with people from other cultural groups. Thus, jobs are sought that allow the person to help others, and engage in social relations with other persons.

Independence refers to an enterprising, mobile, and self-reliant career. Being one's own boss and relatively free from supervision is an attribute of this career. One is on the road much of the time and visits different regions of the country as a part of the job.

Regional refers to the concept that one finds a career in their hometown near friends and relatives. One can live with parents, and only work when they want. Preference is given to obtaining a job near one's hometown.

Computation of CEDQ Subscale Scores

Scores for each of the subscales were computed for an analysis of the reliability and validity of the CEDQ. The scores were based upon the responses to the items which clustered together in the factor analysis. The subscale scores were obtained from a sum of the responses to each item in the set, and then computing an average of the scores based upon the number of items in the set. The number of items in the set also excluded items which were not marked. The raw scores for each subscale were standardized to a mean of 50 and a standard deviation of 10. The standardization means and standard deviations were based upon a sample size of 570 lower division college students.

Reliability of CEDQ Subscales

Cronbach's coefficient alpha was used to compute the reliability of each CEDQ subscale.[30] Cronbach's formula for reliability is not as influenced by a small number of items in a subscale as is, for example, the Kuder-Richardson formula.[31] The reliability coefficients for the CEDQ subscales were included in Table 2. The reliability of the current form of the CEDQ is "acceptable." The average reliability of all subscales is .61 which may be considered reliable enough for experimental use. The sample size of 570 which was used to obtain the reliabilities is small, and additional respondents need to be added before the reliabilities begin to stabilize. In short, the CEDQ, in its present form, may be used only on an experimental basis.

Relationships Among CEDQ Subscales

One goal in the construction of a measuring instrument is to minimize the intercorrelations among the separate subscales. In this way, each subscale measures an independent aspect of the domain. Factor analysis is particularly useful to identify factors or subscales which are relatively independent.

Table 3

Pearson Correlations

CEDQ Subscales*

(N=570)

	Self-development	Utilitarian	Systematic	Procrastination	Interactive	Inventive	Goal-directed	Social Adaptability	Temporal	Rational	Security	Work with others	Independence	Regionality
Self-Development	1.00													
Utilitarian	01	1.00												
Systematic	28	-02	1.00											
Procrastination	04	14	-33	1.00										
Interactive	22	10	35	-28	1.00									
Inventive	09	20	16	01	17	1.00								
Goal-directed	28	18	52	-12	31	18	1.00							
Social Adaptability	19	10	-02	29	-13	22	13	1.00						
Temporal	03	18	-01	20	-03	17	18	25	1.00					
Rational	30	05	24	07	01	10	33	12	27	1.00				
Security	22	12	23	17	01	05	37	16	23	43	1.00			
Work with others	24	13	17	04	23	25	24	21	18	04	22	1.00		
Independence	10	17	08	11	03	25	16	12	23	12	16	27	1.00	
Regionality	12	08	13	10	04	08	16	22	04	17	30	12	08	1.00

*.08 is significant at .05 level

However, by the nature of the technique itself--the analysis of common factors--correlations are expected among the subscales. Accordingly, the intercorrelation among the CEDQ subscales were presented in Table 3. An examination of the table indicated that the subscales were intercorrelated and the correlations ranged in value from -.28 to .00 to .52. An interpretation of the subscales indicated that the intercorrelations "made sense" with respect to the constructs measured, and none were excessively high.

As an additional way to examine the interrelationships among the subscales, a component factor analysis was conducted. The factor loadings for the first three factors are presented in Table 4. Note, that the CEDQ subscales group into three basic clusters. The first factor appears to be measure a cognitive orientation to education and life. The subscales, Security, Rational, Goal-Directed, Self-Development and Regional obtain high loadings on this factor. The second factor, which includes all the study practices subscales, Interactive, Procrastination, and Systematic, appears to measure an educational and academic orientation. Procrastination was inversely related to the other two subscales. The third factor appears to describe the affective and social aspects of college life. The subscales Inventive, Sociality, Independence, Utilitarian, Temporal and Social Adaptability all obtain substantial loadings on this factor.

Table 4 indicated that the experimental form of the CEDQ was relatively factorial pure. However, the subscales of Social Adaptability, Temporal, and Goal-Directed have higher loadings on the other factors than typical for factorially pure subscales. These subscales are complex, and new items may reduce the overlap with the other subscales.

Table 4
Principal Components Factor Analysis and
Varimax Rotation for CEDQ Subscales
(N=570)

Subscale	I	II	III	h^2
Security	75	-07	10	58
Rational	74	-01	-02	55
Goal-directed	57	45	25	59
Self-Development	51	24	12	33
Regional	47	-09	09	24
Interactive	02	71	25	57
Procrastination	18	-71	21	58
Systematic	43	68	04	65
Inventive	-01	16	67	47
Work with others	16	19	60	42
Independence	10	-03	59	36
Utilitarian	01	-06	54	30
Temporal	30	-27	45	36
Social adaptability	32	-36	40	40
	3.1	2.0	1.4	Eigenvalue
	22	36	46	% variance

Validation of the CEDQ

As one means to determine the concurrent validity of the CEDQ, the subscales were correlated with the SDS. Both instruments were administered to a sample of 62 Anglo, Black, Spanish speaking and Native American students. The characteristics of the sample were similar to those of the CEDQ standardization sample.

Hollands theory of career development assumes that persons are attracted to specific careers because of the similarity of their personality and the perceived attributes of the career. In short, a compatibility exists between a career and the personality of a person. Thus, one would expect a correlation between personality variables, broadly conceived, and attributes of a career.

The correlation of the CEDQ subscales with the final weighted scores for the SDS is presented in Table 5. It is important to note that few significant correlations exist with the small N of 62, but the correlations were sufficiently high for interpretation. Accordingly, the pattern of correlations were analyzed to describe the "personality" of a hypothetical person who scored high on each of the SDS subscales.

Realistic--did not view education as an instrumentality for self-development and self-actualization, nor as a means for developing one's own philosophy of life. Also did not have a rational or scientific approach to a philosophy of life. In addition, working with others was not a major attribute of the type of job they would like, and they tend not to procrastinate and prefer "getting the job done." They also preferred a job in the local Region.

Table 5

Pearson Correlation Coefficients for
CEDQ and SDS Subscales
(N=62)

	Realistic	Investigative	Artistic	Social	Enterprising	Conventional
1. Self-Development	-15	08	-05	10	-04	10
2. Utilitarian	06	08	-22	-08	01	-02
3. Systematic	-07	07	25*	07	-07	-03
4. Procrastination	-16	-19	-15	22	07	14
5. Interactive	-04	10	03	00	17	-12
6. Inventive	12	21	09	-18	-01	-15
7. Goal-directed	-07	-08	-17	11	16	06
8. Social Adaptability	-04	01	-02	14	-15	-01
9. Temporal	-10	-18	00	04	05	10
10. Rational	-23	-05	03	18	05	12
11. Security	-08	-05	-07	04	-10	21
12. Work with others	-28*	-02	-01	38*	04	06
13. Independence	00	-05	03	-06	17	-05
14. Regionality	13	03	-06	01	02	-09

Investigative--did not have a Temporal philosophy of life emphasizing pleasure seeking on a short-term basis nor did they procrastinate when it came to performing tasks. They were very Inventive, and employed an Interactive mode when in learning situations.

Artistic--did not view education in a Utilitarian manner as vehicle to obtain a good job, nor was the artistic person highly Goal-directed with a planned career line. However, Systematic study habits were employed in learning situations, and they tended not to Procrastinate when it came to performing duties.

Work with others--expressed a primary attribute of an ideal job in the desire to work with other people. They tended to be high on social adaptability--influenced to a large extent by their peers--and also were high on Procrastination. In addition, they were not Inventive and preferred not to take risks, and took a Rational approach to life.

Enterprising types preferred jobs with considerable Independence and were low on Social Adaption, an index of how influencable they were by their friends. They were Goal-directed and wanted to "get ahead in life," and employed an Interactive mode of study when in learning situations.

Conventional types indicated that Security was a major attribute of an ideal job, and they were not Inventive and did not prefer to take risks. In addition, they tended to Procrastinate when facing learning tasks. However, a Rational approach was used as a basic philosophy of life.

Despite the lack of significant correlations among the CEDQ subscales and Holland's SDS in part due to the low N, it was possible to interpret "meaningful" patterns for the correlations of the CEDQ subscales with the scores on the SDS. Thus, additional evidence is provided which supports Holland's theory that "personality" and job interests are related.

A second study of the predictive validity of the CEDQ was also conducted, and is presented in an earlier section of this report. A multiple regression analysis was computed with the following independent variables and college cumulative GPA as the dependent variables: (1) biographical characteristics, high school GPA, ACT scores, CEDQ subscales and SDS subscales. Several of the CEDQ subscales obtained significant correlation with college GPA and the Multiple Correlation was .72. Currently the CEDQ has moderately low predictive and concurrent validity, and additional validation studies are needed before it is advisable to use the form for other than experimental purposes.

Summary

An instrument, the Career Education Description Questionnaire (CEDQ), was constructed with the use of factor analysis. The 95 item questionnaire measures 14 basic factors in the following five domains related to educational and career choice: View of Education, Philosophy of Life, Self-Concept, Study Practices, and Career Attributes.

The experimental instrument was developed with a sample of 570 low educational attainment college students from Anglo, Native American, Spanish speaking, and Black cultural heritages. Separate factor analyses indicated the subscales of the instrument for the most part were perceived in common by the cultural groups as well as for male and female students.

Moderately low concurrent validity was established between the CEDQ and Holland's SDS. The pattern of correlations, however, did lend additional support to Holland's theory that personality and occupational interests are related. Also, some of the CEDQ subscales correlated significantly with college GPA.

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Appendix C

Career Education Description Questionnaire

This questionnaire describes some of the topics associated with a persons' choice of a career. Each person has different experiences, attitudes and views on topics related to career education. Accordingly, there are no "right" or "wrong" answers in the questionnaire, but instead statements which simply describe a variety of topics associated with career education. Please read each statement carefully and then, using the scale printed at the top of each page, indicate your response to the item.

If you are not sure about the question, you may omit answering it, or make the best possible estimate of how you feel about it. If any of the questions are objectionable to you, simply do not answer them. However, your responses to this questionnaire will be held in confidence, and no individual information will be made available to the public.

The project is supported by a grant from the Bureau of Vocational Research, U.S. Office of Education, Washington, D.C. The purpose of the project is to provide basic research data for improving the career choices of students.

THANK YOU

Don B. Croft
Vocational Research Project
Educational Research Center
New Mexico State University

1975

Career Education Description Questionnaire

C1-4) Name_____

C5-10) If you are in a special program at the university please write in the name of the program e.g. COPE, SSS, etc.

_____

BIOGRAPHICAL INFORMATION

C11) Sex

1. Male
2. Female

C12) Age

1. 18 or younger
2. 19-21
3. 22-25
4. 26-29
5. 30 or older

C13) Marital status

1. Single
2. Engaged
3. Married, no children
4. Married, with children
5. Widowed, divorced or separated

C14) Ethnicity

1. White-American
2. Spanish-American
3. Black-American
4. Native-American
5. Other (Please specify_____

C15) Education

1. Pre-college
2. Freshman
3. Sophomore
4. Junior
5. Senior
6. Graduate

C16) Population of your "home town"

1. 2,500 or less
2. 2,501 to 10,000
3. 10,001 to 50,000
4. 50,001 to 100,000
5. 100,001 to 500,000
6. 500,001 or more

C17) Years lived in present community

1. One year or less
2. 2-4
3. 5-10
4. 11-19
5. 20 or more years

C18) Church attendance for the past year

1. Never
2. A few times
3. Once a month
4. 2 or 3 times a month
5. Once a week
6. Weekly or more

C19) Your parents yearly family income

0. Don't know
1. $3,000 or less
2. 3,001 to 5,000
3. 5,001 to 10,000
4. 10,001 to 20,000
5. Over $20,000

C20) Your yearly income, include wife if married

0. Don't know
1. $3,000 or less
2. 3,001 to 5,000
3. 5,001 to 10,000
4. 10,001 to 20,000
5. Over $20,000

C21) Father's Education

1. Less than 7 years school
2. Jr. High school graduate
3. Attended high school
4. High school graduate
5. Attended college or post high school
6. College graduate
7. Attended graduate school
8. Masters degree
9. Doctors degree

C22) Mother's Education

1. Less than 7 years school
2. Jr. High school graduate
3. Attended high school
4. High school graduate
5. Attended college or post high school
6. College graduate
7. Attended graduate school
8. Masters degree
9. Doctors degree

C23) Military Service

1. Non-veteran
2. Reserve or National Guard only
3. Veteran of active duty
4. Other (please specify)

_____

C24) Father's attitude toward your attending college

1. Don't know
2. Opposed to my attending
3. Mixed feelings about attend
4. Said "it was up to me"
5. Actively urged me to attend
6. Took it for granted I would attend

C25) Mother's attitude toward your attending college

1. Don't know
2. Opposed to my attending
3. Mixed feelings about attend
4. Said "it was up to me"
5. Actively urged me to attend
6. Took it for granted I would attend

C26) What was your approximate grade point average in high school (A=4.00)

1. .5 or less
2. .5-1.4
3. 1.5-2.4
4. 2.5-3.4
5. 3.5-4.0

1. Strongly disagree
2. Disagree
3. Agree
4. Strongly agree

VIEW OF EDUCATION

27. Usually, I learn more on my own than I do from the instructor	1	2	3	4
28. I would like to take only the classes I need for graduation	1	2	3	4
29. Many required courses have little relevance to me	1	2	3	4
30. I like classes that teach something practical	1	2	3	4
31. I accept the idea of "knowledge for knowledge's sake"	1	2	3	4
32. All cultural groups have the same opportunity for an education	1	2	3	4
33. One doesn't need a college degree to get a good job	1	2	3	4
34. The more education one obtains the more they find out how little they know	1	2	3	4
35. College helps one learn about the cultural values of others	1	2	3	4
36. My parents always expected me to go to college	1	2	3	4
37. Education helps develop one's philosophy of life	1	2	3	4
38. Instructors provide individual assistance to students	1	2	3	4
39. College helps one find friends with other cultural backgrounds	1	2	3	4
40. Learned very much in high school	1	2	3	4
41. Instructors are receptive to change	1	2	3	4
42. A degree is only a "ticket" to a good job	1	2	3	4
43. Jobs are open to persons from all cultural groups	1	2	3	4
44. I have learned much in my college courses	1	2	3	4
45. College is an excellent place to find new friends	1	2	3	4
46. I have wanted to attend college for a long time	1	2	3	4

1. Strongly Disagree
2. Disagree
3. Agree
4. Strongly agree

STUDY PRACTICES

47. I work hard to get good grades even if I don't like a course	1	2	3	4
48. I have a definite career selected after college	1	2	3	4
49. I put off doing homework until the last minute	1	2	3	4
50. I can study at least one hour without being distracted	1	2	3	4
51. During an exam I have difficulty remembering things I know	1	2	3	4
52. I am interested in most of my classes	1	2	3	4
53. I worry about flunking out of college	1	2	3	4
54. I usually study in the same place	1	2	3	4
55. Obtain help from someone if I don't understand	1	2	3	4
56. Use a dictionary to find the meaning of words I don't know	1	2	3	4
57. Read assignments prior to attending class	1	2	3	4
58. Review class materials several days before the exam	1	2	3	4
59. Allow time for relaxation and recreation	1	2	3	4
60. Can easily express myself orally	1	2	3	4
61. Can easily express my thoughts in writing	1	2	3	4
62. Try and anticipate what the instructor will ask on an exam	1	2	3	4
63. My mind wanders when I try to study	1	2	3	4
64. Cram the night before an exam	1	2	3	4
65. Homework has first priority over most things	1	2	3	4
66. Perform at my best during an examination	1	2	3	4
67. Do my homework on a regular basis	1	2	3	4
68. Participate actively in class discussions	1	2	3	4
69. Go out at night with others during the school week	1	2	3	4
70. I need to improve my study habits	1	2	3	4

1. Strongly disagree
2. Disagree
3. Agree
4. Strongly agree

SELF CONCEPT

71. It is important for me to get ahead	1	2	3	4
72. I get along with most people	1	2	3	4
73. I have accomplished many difficult things	1	2	3	4
74. I try hard to get good grades	1	2	3	4
C11 I have much to be proud of	1	2	3	4
12. Having many friends is important to me	1	2	3	4
13. I've had few opportunities to demonstrate what I really can do	1	2	3	4
14. Success is just, "getting up one more time"	1	2	3	4
15. I usually plan ahead for things	1	2	3	4
16. I invent new ways to do things	1	2	3	4
17. I often act completely on impulse	1	2	3	4
18. It's easy for me to become apathetic and not try things	1	2	3	4
19. I often do what my friends want to do	1	2	3	4
20. I am seldom caught unaware	1	2	3	4
21. Seldom have enough time to finish all I want to do	1	2	3	4
22. Am always trying new things	1	2	3	4
23. Often see the humor in tense situations	1	2	3	4
24. Usually meet deadlines imposed on me	1	2	3	4
25. Usually respond agressively in competitive situations	1	2	3	4
26. I do many things for others	1	2	3	4
27. I like to know "the rules of the game" before committing myself	1	2	3	4
28. I usually avoid ambiguous situations	1	2	3	4
29. Rules are made to be followed	1	2	3	4
30. I perform best in a tense situation	1	2	3	4

V

1. Strongly disagree
2. Disagree
3. Agree
4. Strongly agree

PHILOSOPHY ABOUT LIFE

31. Maintaining the rules of a society is more important than the rights of a single individual	1	2	3	4
32. An individual to a large degree can control his own destiny	1	2	3	4
33. There is no final authority concerning moral values	1	2	3	4
34. Seeking personal happiness is an acceptable end in itself	1	2	3	4
35. Ideas have value only if they can be put to use	1	2	3	4
36. Knowledge is open-ended and tentative rather than certain	1	2	3	4
37. All authority should be open to examination	1	2	3	4
38. Personal experience is the best basis for making decisions	1	2	3	4
39. Moral values should change with the times	1	2	3	4
40. Science provides the best way of explaining the universe	1	2	3	4
41. Truth is obtainable through the human powers of the intellect	1	2	3	4
42. A person can never fully experience the feelings of another person	1	2	3	4
43. Thorough knowledge of the past is a good preparation for the future	1	2	3	4
44. The world is always in a state of change	1	2	3	4
45. Technology has made the world a better place to live	1	2	3	4
46. Most people resist changes in our society	1	2	3	4
47. An individual should be responsible only to himself for his actions	1	2	3	4
48. It is immature to believe in something only because ones parents did	1	2	3	4
49. The universe operates upon discoverable natural laws	1	2	3	4
50. One gets ahead in society by being truthful	1	2	3	4
51. There is usually only one "best" answer to a problem	1	2	3	4

1. Very unimportant
2. Unimportant
3. Important
4. Very important

ATTRIBUTES OF A CAREER

52. Being "on the road" much of the time	1	2	3	4
53. Remain near friends	1	2	3	4
54. Able to work when you want	1	2	3	4
55. Earn considerable money	1	2	3	4
56. Engage in creative activities	1	2	3	4
57. Social status and prestige	1	2	3	4
58. Remain near parents or family	1	2	3	4
59. Act in a leadership position	1	2	3	4
60. Have specified and routine activities to perform	1	2	3	4
61. Work with people rather than things	1	2	3	4
62. Have a stable and secure future	1	2	3	4
63. Relatively free from supervision	1	2	3	4
64. In a position to help others	1	2	3	4
65. Be your own "boss"	1	2	3	4
66. Have regular working hours	1	2	3	4
67. Live in different regions of the country	1	2	3	4
68. Regular time-in-grade promotions	1	2	3	4
69. Remain in hometown area	1	2	3	4
70. In a position to help others from my cultural group	1	2	3	4
71. Based upon your formal education	1	2	3	4
72. Opportunity for rapid advancement	1	2	3	4
73. Obtain enjoyment from my job	1	2	3	4
74. Work with persons from other cultures	1	2	3	4

Appendix D

Replication of the SDS Hexagonal Model with COPE Students

Theodore G. Brough

In the professional manual accompanying the Self-Directed Search (SDS), Holland describes a hexagonal model of personality types as a method for organizing the subscales of the Self-Directed Search (SDS) guidance system.[1] The hexagonal model displays the intercorrelations among the personality types assessed by the SDS. In the model, the six personality types are arranged in a way that the distances between types are inversely proportional to the size of the intercorrelations between them. The arrangement results in a hexagon. The hexagonal arrangement first was proposed by Holland in 1969 and was based on results from the Vocational Preference Inventory.[2] Cole and Hanson also verified the hexagonal structure with the following vocational inventories: the Strong Vocational Interest Blank, the Minnesota Vocational Interest Inventory, and the Kuder Occupational Interest Survey.[3]

A 1972 study by Edwards and Whitney extended the theory of the hexagonal model to include intercorrelations among personality types from four different domains of the Self-Directed Search: Activities, Competencies, Self-Ratings, and Occupations.[4] Edwards and Whitney, utilizing configurational analysis indicated that a hexagonal model was obtained with the data from 30 SDS scales for 358 men and 360 women.[5]

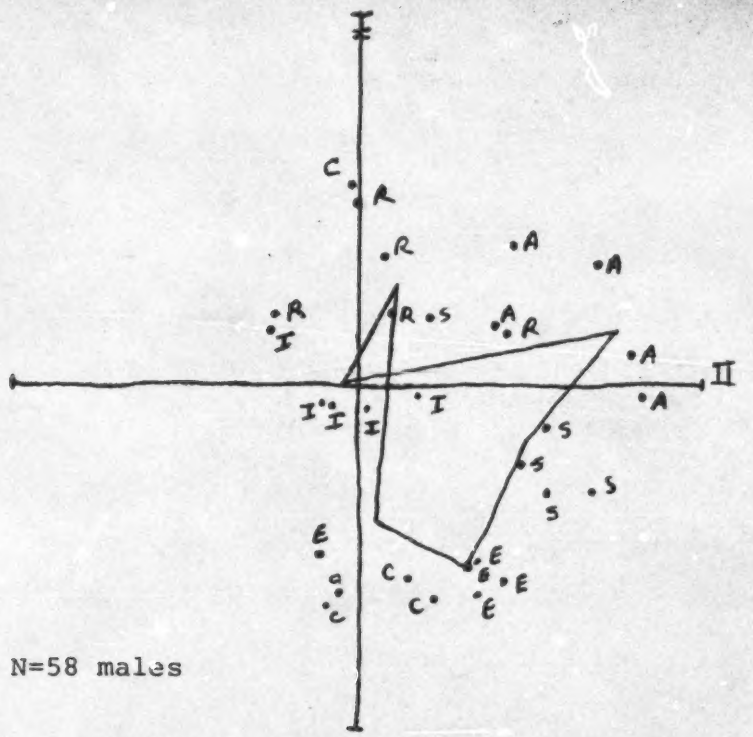
The SDS was administered to a group of 102 low income, low prior educational attainment, multicultural students enrolled in a special assistance program (COPE) at New Mexico State University. The lower division students were academically "high-risk" students and were given special tutoring and counseling to aid them in adjusting to college. Because the COPE sample was different from subjects reported in previous studies with the VPI and the

SDS, an analysis was made to determine if the Hexagonal model SDS was obtained with this sample. The SDS measures vocational interests for the following five domains: Activities, Competencies, Occupations, Self-Ratings-1, and Self-Ratings-2. Each of the domains yield scores on six personality types: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional.

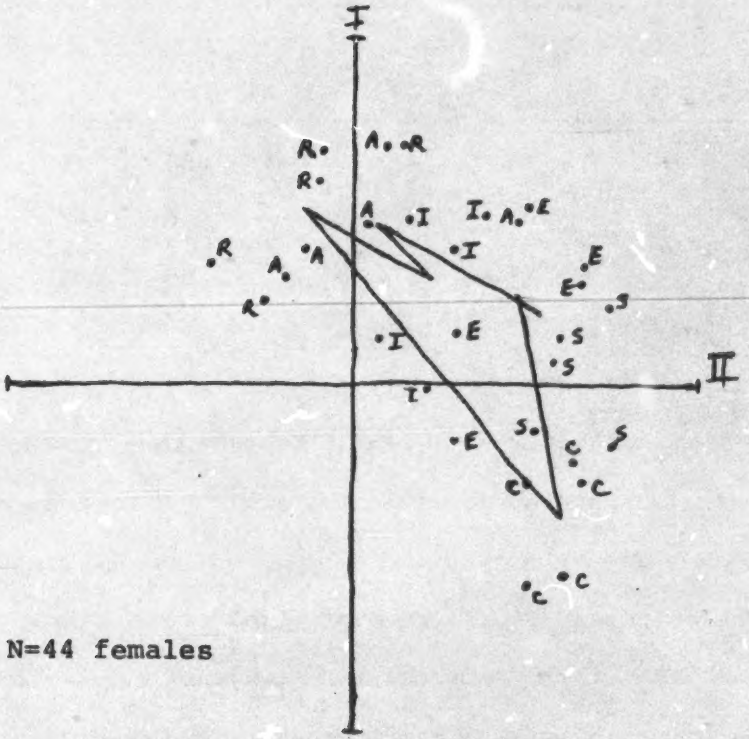
Correlation Coefficients among the scores for the six personality types for each of the five domains were computed. Separate intercorrelation matrices were computed for the 44 females and for the 58 males. Then, a principal components factor analysis and varimax rotation of the two matrices were computed. The results of the four factor solution are reported in Appendix A. As one means of representing the six personality types in two dimensional factor space a two factor unrotated solution was obtained for the male and female samples, and is plotted in Figure 1.

The plot in Figure 1 shows that, in general, the hexagonal arrangement for the COPE students was similar to the samples of Holland and others. The shape, however, is more like a "snowflake" than a hexagon. The original sequence of personality types for the Holland data was C-R-I-A-S-E for each corner of the hexagon. For the sample of COPE males, the personality type sequence was C-I-R-A-S-E which indicated that R was between I and A instead of I being adjacent to C in Holland's data. Moreover, for the female COPE students, the sequence of personality types was C-R-A-I-E-S which indicated that I was between A and E instead of between C and R. In addition, E was between I and S instead of between S and C.

Thus, the plot was an adequate representation of a hexagon for the COPE male and female samples and the male sample was more representative of Holland's original data than the female sample. Cattell discussed the instability of factor solutions which may, in part, account for the minor dis-



N=58 males



N=44 females

Fig. 1. Plot of Unrotated Factor loadings (2-Factor Solution) for SDS sub-scales for males and females

crepancies of the COPE hexagon with Holland's data.[6] The plot did indicate the relative independence of the personality types as measured by the SDS.

As another way of asse , the similarity of the COPE sample with the samples of Holland and others, the SDS intercorrelation matrices were examined. The intercorrelations among the six personality types for each of the five Self-Directed Search scales were combined to yield average correlations between each of the personality types across all domains of the subscales. The averages were computed separately for males and females. The average correlations also were computed for the Holland, Edwards and Whitney and Crabtree data.[7] The averages for the personality-type correlations are presented in Appendix B.

TABLE 1

Correlations Between 15 Correlation Values Listed For The Comparison Samples

	COPE		HOLLAND		EDWARDS		CRABTREE
	F	M	F	M	F	M	F + M
1.	1.00	.43	.44	.49	.56	.51	.27
2.		1.00	.64	.80	.69	.77	.67
3.			1.00	.89	.96	.87	.49
4.				1.00	.87	.99	.75
5.					1.00	.86	.47
6.						1.00	.75
7.							1.00

To determine the similarity of the correlations for the comparison groups, correlations between the sets of correlations were computed. The results in Table 1 show a high level of correlation between each of the sets of average values. All are positive and the lowest correlation (.27) was between female COPE students and the combined male and female students in the Crabtree sample. It can be recalled that Crabtree used the VPI, an

earlier form of the SDS which may, in part, account for the low correlation between the two samples. In general, however, the correlations among the personality types were very high (average correlation equaled .67) and indicated that the personality types remained consistent regardless of the group sampled (rural high school students, college freshmen, and academically high-risk college students).

One additional analysis was completed utilizing the average correlations across test domains between personality type as measured by the SDS. If it is recognized that a correlation is represented, geometrically, as the cosine of the angle between two unitary vectors.[8] Then, the angle between successive unitary vectors represented by the correlation values can be computed. It is important to recall that the angles for a hexagon are 60°.

TABLE 2
The Angle Between
Personality Types for Comparison Samples

	COPE			HOLLAND			EDWARDS			CRABTREE
	F	M	M+F	F	M	M+F	F	M	M+F	M+F
1-2	78	77	77	61	67	64	66	70	68	66
2-3	83	86	84	84	87	85	82	86	84	65
3-4	83	67	75	81	79	80	80	80	80	57
4-5	71	68	70	64	58	61	64	64	64	49
5-6	74	68	71	72	65	69	75	68	72	45
6-1	99	87	93	78	83	81	83	82	83	59
AVERAGES	81	75	78	73	73	73	75	75	75	57

The angles between SDS subscales for the comparison samples are presented in Table 2. The average of the angles was computed and listed at the bottom of the table. The averages show that the angle between successive personality types is somewhat higher than 60° for the Holland data

(73°), the COPE data (78°), and the Edwards data (75°), and slightly lower for the Crabtree data (57°). However, the general trend for all samples indicated that approximately a 60° angle was obtained between the personality types. In summary, the analysis indicated that by and large the SDS is generalizable to the multicultural sample used in this study.

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Appendix A
Principal Components Factor Analyses and Varimax Rotated Loadings for the SDS Subscales (COPE Sample)

	FEMALE (N=44)					MALE (N=58)				
DOMAIN	I	II	III	IV	h^2	I	II	III	IV	h^2
					ACTIVITIES					
1.	00	90	-15	14	85	01	94	11	08	91
2.	08	10	-14	96	96	10	08	08	98	99
3.	04	18	-93	08	90	-00	08	90	04	83
4.	87	-25	02	14	83	41	06	70	14	68
5.	88	16	-19	-01	84	83	-24	20	-02	78
6.	31	-52	-56	30	77	74	35	04	20	71
					COMPETENCIES					
1.	38	-46	29	59	79	13	27	06	-90	90
2.	12	02	97	17	99	04	89	09	-24	85
3.	23	23	15	88	91	94	15	05	-01	92
4.	92	16	11	13	89	74	-09	39	-30	80
5.	86	20	09	31	87	31	-21	76	-33	82
6.	35	83	06	16	85	10	39	82	11	85
					OCCUPATIONS					
1.	73	-06	45	-30	83	11	17	10	97	100
2.	15	07	94	16	94	06	98	01	15	98
3.	86	-06	09	24	82	00	10	91	04	84
4.	11	16	12	94	93	36	-11	74	05	69
5.	65	55	-06	29	82	82	-09	33	02	80
6.	-07	95	09	10	93	91	14	-00	13	86
					SELF-RATINGS(1)					
1.	-90	-02	01	-16	83	-80	26	08	-18	75
2.	-38	73	03	15	70	-05	06	95	-09	92
3.	-00	-02	99	-10	99	00	88	05	09	78
4.	-06	08	-13	82	69	72	46	05	03	73
5.	29	83	-07	-11	79	09	21	-23	88	89
6.	38	-08	02	72	67	19	-50	37	63	82
					SELF-RATINGS(2)					
1.	-83	-36	15	-02	83	-10	-14	-86	21	81
2.	03	10	95	12	93	04	00	-09	97	94
3.	-70	36	-38	-20	80	93	-10	08	05	88
4.	09	86	10	00	76	58	15	-61	-06	74
5.	02	-41	07	77	77	01	58	-54	-28	71
6.	16	34	14	79	79	-05	92	12	06	87

Appendix B
Average Correlations Between Sub-Scales For The Comparison Samples

Sub-Scales	COPE		HOLLAND		EDWARDS		CRABTREE
	F	M	F	M	F	M	F + M
1-2	.210	.280	.478	.386	.400	.342	.400
2-3	.120	.076	.112	.052	.140	.068	.430
3-4	.130	.390	.154	.186	.178	.182	.550
4-5	.320	.370	.434	.524	.444	.432	.650
5-6	.270	.370	.304	.424	.266	.368	.710
6-1	-.150	.054	.210	.122	.118	.134	.510
1-3	.280	.110	.186	-.022	.194	.012	.220
1-4	-.048	.140	.002	-.132	.024	-.064	.340
1-5	.140	.062	.164	-.016	.152	.018	.480
2-4	.150	.064	.038	-.034	.073	.014	.430
2-5	.200	-.026	.004	-.098	.062	.036	.390
2-6	.150	.150	.070	-.006	.094	.018	.390
3-5	.180	.200	.112	.138	.138	.144	.510
3-6	.058	.024	-.038	-.022	.010	.022	.340
4-6	.310	.190	.206	.250	.140	.230	.570

Appendix E

Reactions of the COPE Students to the SDS Booklet

Little evidence existed in the literature to assess if the SDS is generalizable to other cultural groups. Studies have been conducted with black students, and it was concluded that the SDS was appropriate for that population. However, no studies were discovered which employed a Spanish speaking sample. Accordingly, an instrument was constructed to rate various facets of the SDS, and assess the suitability of the instrument for a sample of 109 Spanish speaking college students. The means and standard deviations for each item in the questionnaire is presented in Table 1.

The mean response for the sample of 109 Spanish speaking students indicated that the group as a whole was favorable to the SDS as an instrument for exploring their career interests. The sample found each section of the SDS "helpful." The sections Occupations, Self-estimates, and What Your Summary Codes Mean received the highest ratings. On the other hand, Some Useful Books, Occupational Daydreams, and Some Next Steps received the lowest ratings, but were still considered, on the average, "helpful." The standard deviations for the latter three sections also were the highest for all sections. Thus, a greater divergence of opinion existed among individuals rating these three sections. However, the higher variability of responses to this section was not interpreted to indicate that additional examination of these sections were warranted. An F test for each variance and the average variance for all sections was computed and none was found significant. Accordingly, the variability of responses to each section were statistically similar.

Questions 1-12 described personal reactions to the SDS as well as items describing behaviors the respondent intends to do as a result of completing

TABLE 1

Item Mean and Standard Deviations for

Reactions to SDS Questionnaire

(N=109)

1. Strongly disagree
2. Disagree
3. Agree
4. Strongly agree

Item	Mean	S.D.	Scale Alternative
1. Want additional information about specific careers.	3.15	.56	Agree
2. Discovered careers I hadn't heard of before.	2.99	.80	Agree
3. Found several careers which interested me.	3.13	.88	Agree
4. Didn't find out anything new about my career interests.	1.97	.78	Disagree
5. Helped me find a general area of interest, but not a specific career.	2.70	.76	Agree
6. My competencies didn't seem to fit any group of careers.	1.94	.80	Disagree
7. Wish additional careers were listed.	2.71	.93	Agree
8. The words used in the booklet were understandable.	3.06	.69	Agree
9. The summary code helped me to find other careers which interested me.	2.93	.75	Agree
10. Was surprised to see none of the careers with the same summary code as mine.	2.42	.84	Disagree
11. The instructions were clear and understandable.	3.11	.63	Agree
12. Completing the SDS was an interesting experience.	3.12	.72	Agree

TABLE 1
Continued

1. Not helpful at all
2. Not helpful
3. Helpful
4. Very helpful

Item	Mean	S.D.	Scale Alternative
13. Occupational Daydream	2.84	.71	Helpful
14. Activities	3.00	.61	Helpful
15. Competencies	2.91	.74	Helpful
16. Occupations	3.21	.56	Helpful
17. Self-Estimates	3.10	.58	Helpful
18. Instructions For Organizing Answers	2.93	.60	Helpful
19. Some Useful Books	2.76	.94	Helpful
20. What Your Summary Code Means	3.08	.68	Helpful
21. Some Next Steps	2.86	.84	Helpful

the SDS. Items receiving the highest ratings include Now want additional information about specific careers, Found several careers which interested me, and Completing the SDS was an interesting experience. Note, too, that items 8 and 24 describing how clear and understandable the SDS was also received high ratings by the Spanish speaking sample. Thus, the SDS was "an interesting experience, helpful in identifying careers which interested the student and was an impetus to find out more information about specific careers."

It is important to note, that the lowest ratings were obtained by the items "helped me find a general area of interest, but not a specific career" and "wish additional careers were listed." This was interpreted to indicate that the students may have expected more from the SDS in terms of identifying a specific career for them. Thus, for their sample, it was recommended that personal counseling as well as referral to the SRA Occupational Descriptions was necessary for the students to obtain more detailed information about specific careers.

In summary, the reaction to the SDS on the average was favorable, in spite of several write-in comments indicating the difficulty students had in "scoring" the instrument. For these students, it appears that the employment of the simplified form of the SDS would have been more helpful.

Appendix F

Mean Scores on CEDQ, ACT and GPA's

for COPE Students

(N=62)

Subscale	Anglo (N=16)	Spanish (N=35)	Black (N=7)	Indian (N=4)
1. Self-Development	50.7	47.9	55.1	46.0
2. Utilitarian	50.2	49.9	50.9	50.5
3. Systematic	49.8	49.3	53.7	47.0
4. Procrastination	51.2	51.6	53.4	50.5
5. Interactive	53.8	47.5	49.4	55.0
6. Goal-Directed	53.9	51.2	50.1	50.2
7. Inventive	53.2	49.5	55.4	51.0
8. Social adaption	47.2	49.2	51.1	44.8
9. Temporal	49.6	52.7	52.7	40.5
10. Rational	52.4	52.0	54.9	53.5
11. Security	51.1	53.2	57.0	49.5
12. Work with people	47.2	48.9	52.7	50.8
13. Independence	53.1	50.1	53.3	51.0
14. Regional	47.9	51.8	51.4	61.2
15. ACT English	12.4	9.9	10.0	10.2
16. ACT Math	15.1	10.8	16.1	15.0
17. ACT Social Studies	14.1	11.0	17.7	18.8
18. ACT Natural Sciences	15.2	13.7	13.3	14.8
19. ACT Cumulative	12.7	10.6	9.7	10.8
20. High School GPA	2.37	2.35	2.23	2.75
21. College GPA	2.62	2.56	2.26	1.90